



UNIVERSITY OF AGRICULTURAL SCIENCES
AND VETERINARY MEDICINE OF IASI
FACULTY OF AGRICULTURE



INTERNATIONAL SCIENTIFIC CONGRESS

Conference of Agriculture and Food engineering

22 - 23 October 2020
Iasi, Romania



**PROGRAMME
BOOK OF ABSTRACTS**

SPEAKER OF THE PLENARY SESSION

PhD, Prof. Teodor RUSU

UASVM Cluj Napoca, Romania,

Soil Navigator – A Decision Support System for assessing and optimizing soil functions

FIRST SECTION

WATER AND SOIL



**PLANT NUTRITION AND SOIL CHEMISTRY
SOIL MANAGEMENT AND AGRICULTURAL TECHNIQUES
SOIL BIOLOGY
AGRICULTURAL CADASTRE
TOPOGRAPHY
CROPS IRRIGATION
LAND RECLAMATION SYSTEMS
PEDOLOGY
LANDSCAPE ARRANGEMENT
ENVIRONMENT ENGINEERING
LAND PLANNING
AGRICULTURAL CONSTRUCTIONS**

PLENARY SESSION

Chairpersons:

**PhD, Prof. Daniel BUCUR
PhD, Assoc. Prof. Feodor FILIPOV**

14.30 – 14.45

İNCİMAN Ahmet Rasih, ACAR Bilal

Selçuk University, Faculty of Agriculture, Department of Farm Buildings & Irrigation, Konya, Turkey

Uniformitatea apei a sistemelor de irigare prin picurare utilizate la irigarea porumbului în provincia Konya-Çumra, Turcia ❖ Water uniformity of drip irrigation systems used for maize irrigation in Konya-Çumra Province, Turkey

14.45 – 15.00

**LUCA Alexandru-Lucian, STICEA Andrei-Stefan, TAMASANU Fabian,
LUCA Mihail**

"Gh. Asachi" Technical University Iasi, Romania

Cercetări privind starea structurală și funcțională a canalelor de

alimentare din sistemele de irigații ❖ Research on structural and functional status of supply channels in irrigation systems

15.00 – 15.15

CALISTRU Anca-Elena, ȚOPA Denis Constantin, AOSTACIOAIEI Tudor, JITĂREANU Gerard

UASVM Iasi, Romania

Efectele sistemului No-till vs. conventional asupra proprietăților fizice ale solului și a producției ❖ No-till vs. conventional tillage effects on soil physical properties and yield

15.15 – 15.30

STICEA Ștefan-Andrei, LUCA Alexandru-Lucian, MARCOIE Nicolae, LUCA Mihail

"Gh. Asachi" Technical University Iasi, Romania

Studii și cercetări privind pierderile de apă din sistemele de irigație ❖ Studies and research on water losses of irrigation systems

15.30 – 15.45

AGAPIE (MEREUȚĂ) Ioana, LUCA Mihail, GHERASIM Paul-Marian

"Gh. Asachi" Technical University Iasi, Romania

Monitorizarea stabilității temporale a barajului Podișu din județul Iași prin măsurători topografice avansate ❖ Monitoring the temporary stability of the Podișu Dam from Iasi County by advanced topographic measurements

15.45 – 16.00

BOGAȚÎ Eugen, VACARCIUC Liviu, BREAHNĂ Elizaveta

State Agrarian University, Moldova

Vinul IGP - un algoritm în afacere prin afinitatea plaiului în Moldova ❖ PGI wine – an algorithm for business through the affinity of the region of Moldova

16.00 – 16.15

FILIPOV Feodor, BODALE Ilie, STOLERU Vasile

UASVM Iasi, Romania

Ameliorarea stratului subarabil de sol compact din cadrul solarilor cultivate cu legume în sistem ecologic ❖ Rehabilitation of under-ploughed compacted layer of tunnels soils growth with organic vegetables

16.15 – 16.30

ACATRINEI Ligia

Biological Research Institute - Iasi, Romania

Analiza capacității fotosintetice la *Amorpha fruticosa*, *Acer negundo* și *Ailanthus altissima*, plante invazive vs. plante native din zone ale

RBDD ❖ Photosynthetic capacity analysis of *Amorpha fruticosa*, *Acer negundo* and *Ailanthus altissima*, invasive plants vs native plant in RBDD areas

16.30 – 16.45

COJOCARU Olesea, BUGA Cătălina

State Agrarian University, Moldova

Exteriorizarea secetei în Republica Moldova - consecințe, pierderi și variație economică ❖ Exteriorization of the drought in the republic of the Republic of Moldova - consequences, losses and economic floating

16.45 – 17.00

BALAN Isabela, CORDUNEANU Flaviana, ȚOPA Denis, CRENGANIȘ Loredana, CAZAN Dragoș, BUCUR Daniel

UASVM Iași, Romania

Modelarea bidimensională a scurgerii în zone largi rurale și urbane cu ajutorul softului HEC-RAS. Studiu de caz - orașul Negrești ❖ HEC-RAS assisted 2D flow modeling for large rural and urban areas. Case study - Negrești Town

POSTER SESSION

Chairperson: PhD, Lecturer Oprea RADU

17.15 – 17.20

BALIUK Sviatoslav, ZAKHAROVA Maryna, VOROTYNTSEVA Ludmila, NOSONENKO Oleksandr

"O.N. Sokolovsky" Institute for Soil Science and Agrochemistry, Ukraine

Managementul durabil a solurilor irigate în agricultura Ucrainei ❖ Sustainable management of irrigated soils in Ukrainian agriculture

17.20 – 17.25

LEAH Tamara, CERBARI Valerian

"Nicolae Dimo" Pedology, Agrochemistry and Soil Protection Institute, Moldova

Evaluarea agriculturii conservatie asupra proprietăților solului în rotația culturilor cu leguminoase în agricultura Republicii Moldova ❖ Evaluation of the conservative agriculture on soil properties in crop rotation with legumes in agriculture of the Republic of Moldova

17.25 – 17.30

POPOV Leonid, KUHARUK Ecaterina

"Nicolae Dimo" Pedology, Agrochemistry and Soil Protection Institute, Moldova

Conservarea și utilizarea rațională a umidității din sol ❖ Preservation and rational use of soil moisture

17.30 – 17.35

FILIPCIUC Vladimir¹, ROZLOGA Iurie¹, BOAGHE Lilia¹, COJOCARU Olesea²

¹"Nicolae Dimo" Pedology, Agrochemistry and Soil Protection Institute, Moldova

²State Agrarian University, Moldova

Cercetări privind acțiunea apei mineralizate asupra caracteristicilor chernoziomului tipic ❖ Research on the action of mineralized water on the characteristics of ordinary chernozem

17.35 – 17.40

CĂLUGĂR Adina

Biological Research Institute - Iasi, Romania

Structura comunităților de mezofaună edafică din unele ecosisteme afectate de plante invazive din Rezervația Biosferei Delta Dunării ❖ Edaphic mesofauna communities structure in some ecosystems affected by invasive plants in the Danube Delta Biosphere Reserve

17.40 – 17.45

ACATRINEI Ligia, FEODOR Filipov

Biological Research Institute - Iasi, Romania

Efectele mulcirii cu polietilenă asupra proprietăților solului și asupra particularităților fiziologice ale tomatelor din cultura ecologică ❖ Polyethylene mulching effects on soil properties and physiological traits in tomato under ecological crop technology

17.45 – 17.50

CARA Irina Gabriela, RAUS Lucian, ȚOPA Denis Constantin, JITĂREANU Gerard

UASVM Iasi, Romania

Evaluarea conținuturilor disponibile de microelemente din soluri prin spectrofotometrie de absorbție atomică ❖ Assessment of soil available microelements by AAS technique

17.50 – 17.55

TOTOLEA Cristian, TOTOLEA (HUȚANU) Adriana Mihaela, TOTOLEA Ionuț Bogdan, BUCUR Daniel

UASVM Iasi, Romania

Prevenirea și combaterea eroziunii solului în perioada 1990-2020 pe terenurile agricole înclinate din județul Bacău ❖ Soil erosion prevention and control on sloping agricultural land in Bacău County during 1990-2020

17.55 – 18.00

DINCĂ Lucian Constantin, DINCĂ Maria

"Marin Drăcea" National Institute for Research-Development in Forestry - Brasov, Romania

Caracteristicile solurilor forestiere din județul Covasna ❖ The

characteristics of forest soils from Covasna County

18.00 – 18.05

COJOCARU Olesea, BUGA Cătălina

State Agrarian University, Moldova

Seceta în Republica Moldova devine mai comună și intensă ❖
Drought in the Republic of Moldova becomes more common and intensive

18.05 – 18.10

SIURIS Andrei

"Nicolae Dimo" Pedology, Agrochemistry and Soil Protection Institute, Moldova

Eficiența agronomică și economică a utilizării deșeurilor de la producerea de băuturi alcoolice pe cernoziom cambic ❖ Agronomic and economic efficiency of the waste use from the production of alcoholic beverages on cambic chernozem

18.10 – 18.15

BUEMA Gabriela¹, HARJA Maria², LUPU Nicoleta¹, CHIRIAC Horia¹, FAVIER Lidia³, COADĂ NENCIU Daniela⁴

¹National Institute of Research and Development for Technical Physics, Iasi, Romania

²"Gheorghe Asachi" Technical University of Iasi, Romania

³Rennes University, Ecole Nationale Supérieure de Chimie de Rennes, France

⁴UASVM Iasi, Romania

Influența tipului adsorbent și a timpului de contact asupra adsorbției ionilor de Cadmiu ❖ Influence of adsorbent type and contact time on Cadmium ions adsorption

18.15 – 18.20

AGAVRILOAIE Oana-Maria¹, CUCOȘ Iulian², CIOBANU Gabriela¹, HARJA Maria¹, MOCANU Ionuț³

¹"Gheorghe Asachi" Technical University of Iasi, Faculty of Chemical Engineering and Environmental Protection, Romania

²"Gheorghe Asachi" Technical University of Iasi, Faculty of Civil Hydrotechnics, Geodesy & Environmental Engineering, Romania

³UASVM Iasi, Romania

Noi direcții de capitalizare pentru deșeurile lichide periculoase ❖ New capitalization directions for hazardous liquid waste

18.20 – 18.25

HUȚANU Cristian

UASVM Iasi, Romania

Realizarea lucrărilor de cadastru sistematic în perspectiva dezvoltării durabile a sectorului viticol și pomicol din România ❖ The carrying out of systematic cadastre works in the perspective of the sustainable development of the vineyard and fruit growing sector in Romania

SECOND SECTION

AGRICULTURAL TECHNOLOGIES



BIOLOGICAL AGRICULTURE
PASTURELAND AND FORAGE CROPS
PROCESSING OF AGRICULTURAL PRODUCTS
PLANT PATHOLOGY
PLANT PHYSIOLOGY
ECOLOGY
ENTOMOLOGY
CROPS SCIENCE
AGRICULTURAL MACHINERY
EXPERIMENTAL DESIGN IN AGRICULTURE

PLENARY SESSION

Chairpersons:

PhD, Assoc. Prof. Dănuț SIMIONIUC
PhD, Assoc. Prof. Florin Daniel LIPȘA

14.30 – 14.40

BURDUJAN Victor, DUBIT Daniela, MELNIC Angela

State Agrarian University of Moldova - Chisinau, Moldova

Productivitatea și calitatea boabelor orzului de toamnă Zimovii în experimente polifactoriale ❖ Grain productivity and quality of the Zimovyi winter barley variety in multifactorial field experiments

14.40 – 14.50

ȚÎȚEL Victor

"Alexandru Ciubotaru" National Botanical Garden (Institute) Chisinau, Moldova

Unele caracteristici biologice și calitatea biomasei la speciile *Lupinus angustifolius* L. și *Lupinus albus* L. în Moldova ❖ Some biological features and biomass quality of *Lupinus angustifolius* L. and *Lupinus albus* L. in Moldova

14.50 – 15.00

TOADER George, CHIURCIU Viorica, FILIP Valentina, FLOAREA Cristian-Ionuț, MAIEREAN Nistor, TOADER Elena-Violeta, PETRE Constantin, ENEA Cătălin-Ionuț, NECHITA Ana-Maria, FÎNARU Nelly Lili, ILIE Leonard

UASVM Bucharest, Romania

Biopreparatele bacteriene: tehnologii de fertilizare alternative fertilizanților chimici ❖ Bacterial biopreparations: alternative fertilization technologies to chemical fertilizers

15.00 – 15.10

GEORGESCU Emil, CREȚU Alina, RADU Cristina, CANĂ Lidia

NARDI Fundulea, Romania

Rezultate privind combaterea *Tanymecus dilaticollis* într-o fermă comercială, din sud-estul României, în condițiile anului 2020 ❖ Results concerning *Tanymecus dilaticollis* control, in the commercial farm, from the south-east of Romania, in the conditions of the year 2020

15.10 – 15.20

PATROLEA Elena, ROBU Teodor

UASVM Iasi, Romania

Botanica și compoziția chimică a varietăților *Foeniculum vulgare* var. *dulce* Mill și *Foeniculum vulgare* var. *vulgare* Mill ❖ Botany and phytochemistry knowledge of *Foeniculum vulgare* var. *dulce* Mill and *Foeniculum vulgare* var. *vulgare* Mill: A review

15.20 – 15.30

MÎRZAN Bogdan¹, ROBU Teodor¹, MÎRZAN Oana², NAIE Margareta², BOSTAN Maria²

¹UASVM Iasi, Romania

²Agricultural Research and Development Station (A.R.D.S.) Secuieni, Romania

Cercetări privind influența genotipului și a epocii de semănat asupra producției de semințe la *Ricinus communis* L. (ricin) în condițiile pedoclimatice din Centrul Moldovei ❖ Research regarding the influence of genotype and epoch of sowing on seeds yield at *Ricinus communis* L. (castor bean) in the pedoclimatic conditions from the Central of Moldova

15.30 – 15.40

VELICHI Eugen

"Dunarea de Jos" University Galati, Romania

Influența unor tratamente cu diferite produse de uz fitosanitar (fungicide) asupra atacului unor ciuperci fitopatogene și asupra producției la grâu - soiul Pitar - în condițiile pedoclimatice ale Bărăganului de Est, în anul 2019 ❖ The influence of treatments with various phytosanitary products (fungicides) on the attack of some phytopathogenic fungi on wheat harvest - Pitar variety - in 2019 pedoclimatic conditions of the Eastern Baragan

15.40 – 15.50

TUDORACHE Valentin Teodor, TĂLMACIU Mihai, TĂLMACIU Nela, HEREA Monica

UASVM Iași, Romania

Cercetări privind entomofauna coleopterelor din unele culturi agricole din partea de Nord a Portugaliei ❖ Rsearches regarding the entomofauna of coleopteras within some agricultural crops from the North part of Portugal

15.50 – 16.00

TOADER George, CHIURCIU Viorica, MAIEREAN Nistor, FILIP Valentina, FLOAREA Cristian-Ionut, BURNICHI Floarea, PETRE Constantin, TOMA Mitel, TOADER Alexandru, MIREA Emilian, NECHITA Ana-Maria, FÎNARU Nelly-Lili, ENEA Cătălin-Ionuț, ILIE Leonard

UASVM Bucharest, Romania

Rezultate privind utilizarea biopreparatelor bacteriene (fertilizatori biologici) în culturile agricole din cadrul Stațiunilor de Cercetare-Dezvoltare pentru Agricultură, România ❖ Results on the use of bacterial biopreparations (biological fertilizers) in agricultural crops in Research and Development Stations for Agriculture, Romania

16.00 – 16.10

ȚÎȚEI Victor¹, ANDREOIU Andreea Cristina², BLAJ Adrian Vasile², MARUȘCA Teodor², COȘMAN Sergiu¹, COZARI Serghei¹

¹"Alexandru Ciubotaru" National Botanical Garden (Institute) Chisinau, Moldova

²Research-Development Institute for Grasslands Brasov, Romania

Calitatea masei verzi și a silozului la specia *Phalaris arundinacea* L. în condițiile Moldovei ❖ The green mass and silage quality of reed canary grass, *Phalaris arundinacea* L. under the conditions of Moldova

16.10 – 16.20

GEORGESCU Emil, CANĂ Lidia, RÂȘNOVEANU Luxita, MINCEA Carmen

NARDI Fundulea, Romania

Păduchele verde al piersicului (*Myzus persicae*) poate fi un dăunător problemă pentru cultura rapiței, în sud-estul României ❖ Green peach aphid (*Myzus persicae*) can be a serious pest problem for oilseed rape crop, in the South-East of Romania

16.20 – 16.30

DINCĂ Lucian, TIMIȘ-GÂNSAC Voichița

"Marin Dracea" National Institute for Research and Development

Pădurile din stepa din Câmpia de vest - o alternativă pentru agricultură? ❖ Forests from the West Plain Steppe - an alternative for agriculture?

POSTER SESSION

Chairperson:

PhD, Assist. Vlad ARSENOAIA

16.35 – 16.40

KÖLLMANN Philipp

Justus Liebig University Gießen, Germany

Eficacitatea unei tehnici de recoltare combinate inovatoare pentru controlul buruienilor în zona centrală a regiunii Hessen - Germania ❖ Effectiveness of an innovative combine harvesting technique for weed regulation in central Hessen/Germany

16.40 – 16.45

CLAPCO Steliana, PORT Angela, WANG Chao, DUCA Maria

"Dimitrie Cantemir" State University - Chisinau, Moldova

Studiul diversității lupoarei provenite din diferite țări cultivate de floarea-soarelui în baza parametrilor morfologici ale semințelor ❖ The study of broomrape diversity in different sunflower cultivating countries based on morphological parameters of parasite seeds

16.45 – 16.50

JITĂREANU Carmenica Doina, SLABU Cristina, MARTA Alina Elena, COVAȘĂ Mihaela

UASVM Iasi, Romania

Efectul unor biostimulatori asupra procesului de fotosinteză la salată ❖ The effect of biostimulants on the process of photosynthesis in lettuce

16.50 – 16.55

TROTUȘ Elena, PINTILIE Paula-Lucelia, AMARGHIOALEI Roxana-Georgiana

Agricultural Research and Development Station (A.R.D.S.) Secuieni, Romania

Date cu privire la monitorizarea speciei *Diabrotica virgifera virgifera* Le Conte, în culturile agricole din zona Centrală a Moldovei ❖ Data on the monitoring of *Diabrotica virgifera virgifera* Le Conte, in agricultural crops in the Central area of Moldova

16.55 – 17.00

COVAȘĂ Mihaela, SLABU Cristina, MARTA Alina Elena, JITĂREANU Carmenica Doina

UASVM Iasi, Romania

Acțiunea unor biostimulatori asupra procesului de fotosinteză la floarea-soarelui ❖ The action of growth regulators on the process of photosynthesis in sunflower

17.00 – 17.05

SLABU Cristina, JIȚĂREANU Carmenica Doina, MARTA Alina Elena, COVAȘĂ Mihaela

UASVM Iasi, Romania

Efecte aleopatice ale extractului apos de *Galinsoga parviflora* Car. asupra germinăției semințelor și creșterii plantulelor de *Raphanus sativus* L. varietățile *sativus* și *niger* ❖ Allelopathic effects of *Galinsoga parviflora* Car. aqueous extract on seed germination and seedling growth of *Raphanus sativus* L. var. *sativus* and var. *niger*

17.05 – 17.10

LEONTE Alexandra, ISTICIOAIA Simona-Florina, POPA Diana, MÎRZAN Oana

Agricultural Research and Development Station (A.R.D.S.) Secuieni, Romania

Comportarea unor soiuri de soia în condițiile pedoclimatice din Centrul Moldovei ❖ The behavior of some soybean varieties in the pedoclimatic conditions from the Center of Moldovia

17.10 – 17.15

MÎRZAN Oana, NAIE Margareta, LEONTE Alexandra, BOSTAN Maria, MÎRZAN Bogdan

Agricultural Research and Development Station (A.R.D.S.) Secuieni, Romania

Cercetări privind influența unor factori tehnologici asupra biologiei speciei și producției de semințe la *Carthamus tinctorius* L. (șofrănel) la S.C.D.A. Secuieni ❖ Researches regarding the influence of the technological factors on the biology of the species and the seed yields of *Carthamus tinctorius* L. in A.R.D.S. Secuieni

17.15 – 17.20

URSACHE Paula-Lucelia¹, TĂLMACIU Mihai¹, TROTUȘ Elena², AMARGHIOALEI Roxana-Georgiana², ISTICIOAIA Simona-Florina², LEONTE Alexandra²

¹UASVM Iasi, Romania

²Agricultural Research and Development Station (A.R.D.S.) Secuieni, Romania

Influența hibridului de porumb asupra nivelului atacului produs de larvele speciei *Ostrinia nubilalis* Hbn. în condițiile din centrul Moldovei ❖ The corn hybrid influence on the *Ostrinia nubilalis* Hbn. larvae attack level under the condition of Central of Moldova

17.20 – 17.25

MÎRZAN Bogdan¹, ROBU Teodor¹, MÎRZAN Oana², NAIE Margareta², BOSTAN Maria²

¹UASVM Iasi, Romania

²Agricultural Research and Development Station (A.R.D.S.) Secuieni, Romania

Cercetări privind influența interacțiunii dintre genotip x epocă de semănat x distanța între rânduri asupra producției de seminte la *Ricinus communis* L. (ricin) ❖ Research regarding the influence of genotype x epoch of sowing x distance between rows on seeds yield at *Ricinus communis* L. (castor bean)

17.25 – 17.30

ISTICIOAIA Simona - Florina, LEONTE Alexandra, POPA Diana, PINTILIE Paula, MATEI Gheorghe, VLĂDUȚ Valentin, VOICEA Iulian

Agricultural Research and Development Station (A.R.D.S.) Secuieni, Romania

Rezultate obținute privind optimizarea tehnologiei de cultivare la sorgul pentru boabe în condițiile pedoclimatice din centrul Moldovei
❖ Obtained results regarding the optimization of grain sorghum technology in pedoclimatic conditions from central Moldova

17.30 – 17.35

CHISNICEAN Lilia, CHISNICEAN Vasile

Institute of Genetics, Physiology and Plant Protection - Chisinau, Moldova

Aplicarea elementelor de tehnologie organică la cultivarea speciilor aromatice și medicinale ❖ Application of organic technological elements to the cultivation of spice-aromatic and medicinal species

17.35 – 17.40

BUCIUMEANU Elena-Cocuța, VIZITIU Diana Elena, DINCĂ Lucian

National Research-Development Institute for Biotechnologies in Horticulture - Stefanesti-Arges, Romania

Stabilirea celor mai valoroase soiuri de viță-de-vie pentru vin în Regiunea viticolă Terasale Dunării prin utilizarea procesului de ierarhizare analitică ❖ The most valuable grapevine varieties for wine established by analytical hierarchical process for a sustainable viticulture in Danube Terraces viticultural region

17.40 – 17.45

TĂLMACIU Nela, TĂLMACIU Mihai, HEREA Monica

UASVM Iasi, Romania

Observații privind structura și dinamica entomofaunei epigee existente în plantațiile de măr ❖ Observations regarding the structure and dynamics of the existing epigeus entomofauna in the apple fruit tree plantations

17.45 – 17.50

ȘUȘNIA (TONE) Irina, OPREA Adrian, SAMUIL Costel, HUȚANU Mariana, SÎRBU Culiță

UASVM Iasi, Romania

Răspândirea actuală a unor neofite invazive în lunca Siretului inferior
❖ The current spread of some invasive neophytes along the lower course of the Siret River

17.50 – 17.55

TĂLMACIU Mihai, HEREA Monica, TĂLMACIU Nela

UASVM Iasi, Romania

Observații privind speciile de carabide existente în livezile de măr ❖ Observations on the existing *Carabidae* species in the apple orchards

17.55 – 18.00

GAVRILĂ Cristian-Sorin¹, SILISTRU Doina¹, NAZARE Adrian-Ilie², STAVARACHE Mihai², VÎNTU Vasile², SAMUIL Costel²

¹Meadows Research and Development Station, Vaslui, Romania

²UASVM Iasi, Romania

Influența fertilizării și a distanței dintre rânduri asupra producției de semințe la sparceță (*Onobrychis viciifolia* Scop.), în primul an de vegetație ❖ The influence of fertilization and distance between rows on seed production of (*Onobrychis viciifolia* Scop.), in the first year of vegetation

18.00 – 18.05

HEREA Monica, TĂLMACIU Mihai, TĂLMACIU Nela

UASVM Iasi, Romania

Cercetări privind biodiversitatea speciilor necesare și utilizate din unele culturi agricole și horticulturale în 2018 ❖ Research on the biodiversity of harmful and useful species from some agricultural and horticultural crops in 2018

18.05 – 18.10

GAFENCU Andrei-Mihai, FLOREA Andreea-Mihaela, ULEA Eugen

UASVM Iasi, Romania

Influența caracteristicilor agrometeorologice ale anului agricol 2019-2020 asupra culturii de grâu în zona de Nord-Est a Moldovei ❖ The influence of agrometeorological characteristics of the agricultural year 2019-2020 on wheat crop in the North-East part of Moldova

18.10 – 18.15

CHIRILĂ Constantin

UASVM Iasi, Romania

Aspecte privind comanda electrică a injectiei de motorină ❖ Aspects regarding the electric control of diesel fuel injection

18.15 – 18.20

TUDORACHE Valentin Teodor, TĂLMACIU Mihai, HEREA Monica

UASVM Iasi, Romania

Observații privind entomofauna coleopterelor din unele culturi agricole din partea de Nord-Est a Portugaliei ❖ Observations regarding the entomofauna of coleopteras within some agricultural crops from the North-East part of Portugal

18.20 – 18.25

ANTON Florinel Gabriel¹, RÎȘNOVEANU Luxita²

¹UASVM Bucharest, Romania

²"Dunarea de Jos" University Galati, Romania

Genotipuri de floarea-soarelui de la INCDA Fundulea în câmpuri infestate cu lupoaie în zona Brailei, în anul 2019 ❖ Sunflower genotypes from NARDI Fundulea in field infestation with broomrape in Braila area, in year 2019

18.25 – 18.30

PRODAN Tudorița¹, JOIȚA PĂCUREANU Maria², RÎȘNOVEANU Luxita^{3,4}, DAN Mihaela², ANTON Gabriel², SAVA Elisabeta⁵, BRAN Alexandru⁵, ULEA Eugen¹

¹UASVM Iasi, Romania

²NARDI Fundulea, Romania

³ARDS Braila, Romania

⁴"Dunarea de Jos" University Galati, Romania

⁵The State Institute for Variety Testing and Registration, Bucharest, Romania

Controlul lupoaiei (*Orobanche cumana* Wallr.), prin dezvoltarea genotipurilor de floarea-soarelui rezistente genetic ❖ Broomrape (*Orobanche cumana* Wallr.) control, by developing genetic resistant genotypes in sunflower

18.30 – 18.35

VELICHI Eugen

"Dunarea de Jos" University Galati, Romania

Influența unor tratamente cu diferite produse de uz fitosanitar (fungicide) asupra atacului unor ciuperci fitopatogene și asupra producției la orz, soiul Donau în condițiile pedoclimatice ale Bărăganului de Est în anul 2019 ❖ The influence of treatments with various phytosanitary products (fungicides) on the attack of some phytopathogenic fungi on barley harvest, Donau variety, in 2019 pedoclimatic conditions of the Eastern Baragan

THIRD SECTION

ECONOMIC SCIENCE AND HUMANITIES



AGROTOURISM
AGRICULTURAL CONSULTANCY
ACCOUNTANCY
RURAL DEVELOPMENT
AGRICULTURAL ECONOMICS
AGRICULTURAL LEGISLATION
MODERN LANGUAGES
MANAGEMENT
MARKETING
PEDAGOGY AND METHODOLOGY
AGRICULTURAL POLITICS
RURAL SOCIOLOGY

PLENARY SESSION

Chairpersons: PhD, Assoc. Prof. George UNGUREANU
PhD, Assoc. Prof. Gabriela IGNAT

14.30 – 14.40

GOLBAN Artur, GOLBAN Ghenadie

State Agrarian University, Moldova

Criminalitate financiară: Cum instituțiile financiare pot diminua riscul de spălare de bani asociat cu persoane expuse politic și îmbunătăți programul lor de conformitate ❖ Financial Crime: How financial institutions can mitigate money laundering risk associated with Politically Exposed Persons and improve their compliance program

14.40 – 14.50

**MIHĂILĂ (BORZA) Mioara¹, LEONTE Elena², BOGHIȚĂ Eduard²,
ROBU Alexandru**

¹"Alexandru Ioan Cuza" University Iasi, Romania

²UASVM Iasi, Romania

Dezvoltarea și diversificarea economiei rurale prin finanțarea proiectelor turistice ❖ The development and diversification of the rural economy by financing the tourism projects

14.50 – 15.00

UNGUREANU George, IGNAT Gabriela, COSTULEANU Carmen Luiza, VIZITEU Ștefan

UASVM Iasi, Romania

Particularitățile agriculturii românești în contextul strategiei de dezvoltare durabilă a Uniunii Europene ❖ Features of Romanian agriculture in the context of the sustainable development strategy of the European Union

15.00 – 15.10

COLIBABA Cintia, GHEORGHIOU Irina, ANTONIȚĂ Carmen, DĂNĂILĂ Dana, APETRĂCHEOAE Alexandra, COLIBABA Anais

UASVM Iasi, Romania

Proiectul Clii4Steam: învățarea disciplinelor științifice și a limbilor străine ❖ The Clii4Steam project: full steam ahead towards learning science and languages

15.10 – 15.20

STANCIU (ANGHELUȚĂ) Nicoleta

Tecuci National College of Agriculture and Economics, Romania

Incidența fiscalității asupra unităților agricole din județul Galați ❖ The incidence of taxation on agricultural units in Galati County

15.20 – 15.30

STANCIU Mihai, BREZULEANU Carmen-Olguta

UASVM Iasi, Romania

Curriculumul universitar antreprenorial non-formal: experiențe și perspective ❖ Non-formal entrepreneurial university curriculum: experiences and perspectives

15.30 – 15.40

BREZULEANU Carmen-Olguta, SIRGHEA Alina

UASVM Iasi, Romania

Spre o înțelegere a dezvoltării profesionale a profesorilor în era digitală ❖ Understanding the professional development of teachers in digital age

15.40 – 15.50

SÎRGHEA Alina, CANTEA-BREZULEANU Mădălina Maria

UASVM Iasi, Romania

Nativi și imigranți digitali. Identificarea decalajului ❖ Digital Natives and Immigrants. Finding the gap

15.50 – 16.00

BITERE Sanda Beatrice, MORARU Radu Adrian

"Gheorghe Asachi" County Library, Iasi, Romania

Începuturile presei agricole Românești: o cronică succintă ❖ The beginnings of the Romanian agricultural press: a brief review

16.00 – 16.10

CIUȘTEA (BUTNARU) Mintenica Mariana

UASVM Iasi, Romania

Posibilități de dezvoltare a fermelor agricole din regiunea N-E prin atragerea fondurilor europene ❖ Rural development approach in Romania's sustainable Development Strategy 2014-2020

16.10 – 16.20

VÂLCU Carmen¹, COSTULEANU Carmen Luiza², IGNAT Gabriela², GEORGESCU Iuliana Eugenia¹

¹Alexandru Ioan Cuza" University Iasi, Romania

²UASVM Iasi, Romania

Avantajele și dezavantajele anumitor tipuri de organizații antreprenoriale ❖ Advantages and disadvantages of certain types of entrepreneurial organization

16.20 – 16.30

BODESCU Dan, COJOCARIU George-Sebastian

UASVM Iasi, Romania

Cercetări de economie aplicată cu privire la specializarea sau diversificarea în agricultură - studiu de caz ❖ Research on applied economics regarding specialization or diversification in agriculture - case study

16.30 – 16.40

SÎRGHEA Alina

UASVM Iasi, Romania

Parenting în era digitală. Oportunități și provocări ❖ Digital parenting. Opportunities and challenges

16.40 – 16.50

MIHĂILĂ (BORZA) Mioara¹, BODESCU Dan², ROBU Maria²

¹Alexandru Ioan Cuza" University Iasi, Romania

²UASVM Iasi, Romania

Promovarea afacerilor verzi - pilon al dezvoltării durabile ❖ Promoting the green business - a pillar of the sustainable development

16.50 – 17.00

BODESCU Dan, GHIORGHICIUC Dorina-Lenuța

UASVM Iasi, Romania

Cercetarea reacției societății cu privire la pandemia COVID-19 ❖ Investigating the company's reaction to the COVID-19 pandemic

POSTER SESSION

Chairperson:

PhD, Lecturer Dragoș ROBU

17.15 – 17.20

MATEI Andrei-Cristian, MĂDESCU Bianca-Maria

Dancu Cattle Breeding Research and Development Station - Iasi, Romania

Fondul European de Garantare Agricolă (FEGA) în dezvoltarea agriculturii europene ❖ European Agricultural Guarantee Fund (EAGF) in the development of European agriculture

17.20 – 17.25

IGNAT Gabriela, ȘARGU Lilia, BIVOL Teodor, BIVOL NIGEL Anelisse, ȘARGU Nicu

UASVM Iasi, Romania

Studii privind politica de comunicare la S.C. Alcovin, Tulcea ❖ Studies on communication policy at S.C. Alcovin, Tulcea

17.25 – 17.30

CIUȘTEA (BUTNARU) Mintenica Mariana

UASVM Iasi, Romania

Abordarea dezvoltării durabile și rurale din regiunea NE a României în context strategic ❖ Approaching sustainable and rural development in the NE region of Romania in a strategic context

17.30 – 17.35

BOGHIȚĂ Eduard, BORZA Mioara, UNGUREANU George, VIZITEU Ștefan, ROBU Alexandru Dragoș

UASVM Iasi, Romania

Studii privind securitatea alimentară pe plan mondial, european și național ❖ Studies concerning world, European and national food security

17.35 – 17.40

DONOSĂ Dan

UASVM Iasi, Romania

Aspecte privind intermedierea financiară globală ❖ Aspects on global financial intermediation

17.40 – 17.45

STANCIU (ANGHELUȚĂ) Nicoleta

Tecuci National College of Agriculture and Economics, Romania

Contribuția fiscalității în dezvoltarea agriculturii în România și în alte țări ale Uniunii Europene ❖ The contribution of taxation in the

development of agriculture in Romania and in other countries of the European Union

17.45 – 17.50

ROBU Alexandru-Dragoș, COSTULEANU Carmen-Luiza, UNGUREANU George, BORZA Mioara, BREZULEANU Stejărel

UASVM Iasi, Romania

Infrastructura secundară de irigații din România: influența modernizării organizațiilor utilizatorilor de apă pentru irigații asupra performanței fermelor membre ❖ Secondary irrigation infrastructure in Romania: influence of the water user's associations modernization on the performance of their member farms

17.50 – 17.55

BITERE Sanda Beatrice, MORARU Radu Adrian

"Gheorghe Asachi" County Library, Iasi, Romania

Patru decenii de presă agricolă românească (1861-1900): un studiu explorator ❖ An exploratory study on four decades of Romanian agricultural press (1861-1900)

17.55 – 18.00

VÂLCU Carmen¹, COSTULEANU Carmen Luiza², IGNAT Gabriela², GEORGESCU Iuliana Eugenia¹

¹"Alexandru Ioan Cuza" University Iasi, Romania

²UASVM Iasi, Romania

Fiscalitatea: este mai bună rata liniară decât rata progresivă? ❖ Taxation: is flat rate better than progressive rate?

18.00 – 18.05

UNGUREANU George, COSTULEANU Carmen Luiza, IGNAT Gabriela, ROBU Dragoș Alexandru

UASVM Iasi, Romania

Strategii de dezvoltare rurală durabilă a regiunii de Nord-Est a României ❖ Strategies for sustainable rural development of the North-East region of Romania

18.05 – 18.10

DAȘCHIEVICI Andi Marius¹, AGOP Ștefana²

¹"Alexandru Ioan Cuza" University Iasi, Romania

²UASVM Iasi, Romania

Impactul neo-instituționalismului asupra dezvoltării rurale în România ❖ The impact of neoinstitutionalism on rural development in Romania

18.10 – 18.15

GHIOC (TĂNASĂ) Teodora-Ramona¹, AGOP Ștefana²

¹"Alexandru Ioan Cuza" University Iasi, Romania

²UASVM Iasi, Romania

Impactul neo-instituționalismului asupra dezvoltării durabile a zonelor rurale prin modele de creștere economică ❖ The impact of neo-institutionalism on the sustainable development of rural areas through economic growth models

18.15 – 18.20

AGOP Ștefana¹, GHIOC (TĂNASĂ) Teodora-Ramona²

¹UASVM Iasi, Romania

²"Alexandru Ioan Cuza" University Iasi, Romania

Influența modelului economic ricardian în sustenabilitatea economiei rurale ❖ The influence of the Ricardian economic model in the sustainability of the rural economy

FOURTH SECTION

FOOD ENGINEERING



TECHNOLOGY AND CONTROL IN WINE INDUSTRY
PRINCIPLES AND METHODS FOR CONSERVATION
OF FOODSTUFFS
MILK TECHNOLOGY
TECHNOLOGY OF MEAT AND MEAT PRODUCTS
TECHNOLOGY AND CONTROL IN THE BREWING
INDUSTRY AND DISTILLATES
QUALITY FOOD OF ANIMAL ORIGIN
QUALITY FOOD OF PLANT ORIGIN
MANAGEMENT OF FOOD QUALITY
FOOD MICROBIOLOGY

PLENARY SESSION

Chairpersons: PhD, Prof. Radu ROȘCA
 PhD, Assoc. Prof. Petrică CÎRLEȘCU

14.30 – 14.45

MURARIU Otilia Cristina, ROBU Teodor, TROFIN Alina, BREZEANU Creola

UASVM Iasi, Romania

Cercetări privind caracterizarea fizico-chimică a unor genotipuri ameliorate pentru specia *Lycopersicon esculentum* obținute în sistem ecologic ❖ Research on the physico-chemical characterization of improved genotypes for the *Lycopersicon esculentum* species obtained in the ecological system

14.45 – 15.00

RAȚU Roxana Nicoleta, UȘTUIROI Marius Giorgi

UASVM Iasi, Romania

Contribuții la cunoașterea fluxului de producție a brânzeturilor cu pastă opărită din cadrul atelierului de microproducție USAMV Iași ❖ Contributions to the knowledge of the production flow of cheese with paste scamped from the UASVM Iasi microproduction workshop

15.00 – 15.15

SANDU Adnana-Gabriela, MURARIU Otilia Cristina

UASVM Iasi, Romania

Cercetări privind influența conservării prin crioanabioză asupra calității unor produse horticole ❖ Research regarding the influence of conservation by freezing over the quality of some horticulture products

15.15 – 15.30

**ZĂPODEANU Cezara-Valentina¹, CÂRLESCU Petru-Marian²,
ARSENOAIA Vlad-Nicolae¹, ȚENU Ioan¹**

¹"Gheorghe Asachi" Technical University, Iași

²UASVM Iasi, Romania

Influența procesului de umectare în sistemul convențional asupra indicilor calitativi la grâu pentru morărit ❖ Influence of the wetting process in the conventional system on the qualitative indices of wheat for milling

15.30 – 15.45

**ARSENOAIA Vlad Nicolae¹, CÂRLESCU Petru¹, BĂETU Marius¹,
ZĂPODEANU Cezara², ȚENU Ioan¹**

¹UASVM Iasi, Romania

²"Gheorghe Asachi" Technical University, Iași

Influența variației parametrilor asupra procesului de uscare a semintelor de porumb ❖ The influence of the variation of parameters on the corn drying work process

15.45 – 16.00

**POSTOLACHE Alina Narcisa¹, POP Cecilia², ZAHARIA Roxana¹,
LĂPUȘNEANU Dragoș Mihai¹, CIOBANU Marius Mihai¹**

¹Dancu Cattle Breeding Research and Development Station - Iasi, Romania

²UASVM Iasi, Romania

Prevenirea fraudelor alimentare ca instrument activ în industria de abatorizare a cărnii de pasăre ❖ Food fraud prevention as an active tool in meat industry: a case study of poultry slaughterhouse

POSTER SESSION

Chairpersons:

PhD, Lecturer Otilia MURARIU

16.00 – 16.10

ROPICIUC Sorina, PRISACARU Ancuța Elena

"Stefan cel Mare" University Suceava, Romania

Proprietăți senzoriale a brânzei obținute prin coagulare enzimatică vegetală ❖ Sensory properties of cheese obtained by vegetable enzymatic coagulation

16.10 – 16.20

**CÂRLESCU Petru Marian, ȚAPU Andreea Mădălina, BĂETU Marius,
ȚENU Ioan**

UASVM Iasi, Romania

Influența procesului de uscare asupra parametrelor fizici la mere ❖
The influence of the drying apple process on physical parameters

16.20 – 16.30

ENACHE Laura, PÎRCĂLABU Liliana, FÎCIU Lidia, RADU Bogdan Vasile

Valea Calugăreasca Research and Development Institute for Viticulture and Vinification, Romania

Caracterizarea anului de recoltă și a calității unor vinuri roșii de Valea Calugărească în funcție de potențialul tehnologic și fenolic al soiurilor
❖ Characterization of the harvest year and the quality of red wines from Valea Calugăreasca depending of the technological and phenolic potential of the varieties

16.30 – 16.40

PÎRCĂLABU Liliana, ION Marian, TUDOR Georgeta, COSTACHE Irina

Valea Calugăreasca Research and Development Institute for Viticulture and Vinification, Romania

Încadrarea în arealul viticol Valea Calugărească a soiurilor de viță de vie pentru struguri de masă și vin în contextul schimbărilor climatice
❖ The integration of vine varieties for table and wine grapes into wine-growing Valea Calugăreasca in the context of climate change

16.40 – 16.50

TUDOR Georgeta, PÎRCĂLABU Liliana

Valea Calugăreasca Research and Development Institute for Viticulture and Vinification, Romania

Evaluarea potențialului de producție și calitate al soiurilor muscat ottonel și cabernet sauvignon în relație cu factorii climatici în podgoria Dealu Mare ❖ Evaluation of the production and quality potential of Muscat Ottonel and Cabernet Sauvignon varieties in relation to climatic factors in Dealu Mare vineyard

16.50 – 17.00

MURARIU Otilia Cristina, IRIMIA Liviu Mihai

UASVM Iasi, Romania

Influența intervalului de păstrare asupra calității merelor depozitate în condiții controlate ❖ The influence of the storage interval on quality of the apple stored under controlled storage condition

17.00 – 17.10

LIPȘA Florin-Daniel, GAFENCU Andrei, ȚÎMPĂU Alina Bianca

UASVM Iasi, Romania

Evaluarea florei microbiene asociate cu paste instant și condimentele însoțitoare ❖ Assessment of bacteria and fungi associated with the instant noodles and accompanying seasoning packets

Soil Navigator - A Decision Support System for assessing and optimizing soil functions

Teodor RUSU^{1,2*}, Paula Ioana MORARU¹, Ileana BOGDAN¹, Stefan BAKOS²,
Horia CACOVEAN²

¹*University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, 3-5 Mănăştur Street, Cluj-Napoca, 400372, România, *email: trusu@usamvcluj.ro*

²*Office of Pedological and Agrochemical Studies Cluj, 1 Fagului Street, 400483, Cluj-Napoca, România, email: ospa.cj@madr.ro*

The Soil Navigator (<http://www.soilnavigator.eu>) decision support system (DSS) was developed in the Horizon 2020 project LANDMARK: *LAND Management: Assessment, Research, Knowledge base*. The project involved 22 partners from 17 countries (<http://landmark2020.eu>). Soil Navigator is currently available in the following languages: English, German, Danish, French, Italian and Romanian. It assesses the initial capacities of five soil functions within a field including primary productivity, nutrient cycling, water purification and regulation, carbon sequestration and climate regulation, as well as biodiversity and habitat provision. In addition, this evidence based DSS offers targeted solutions and management recommendations to improve the supply of several soil functions simultaneously and assisting farmers and farm advisors to make the right decisions for long term sustainability.

The main features of the Soil Navigator on-line tool (Debeljak et al., 2019):

- *easy to use*: a purposely designed interactive interface was created to grant users smooth access to what is a complex evidence based DSS;
- *long-term overview*: simultaneously assessing and improving five soil functions, simplifying the decision making process for long-term sustainability;
- *valuable output*: evaluating the resulting supply of soil functions based on user preferences for the suggested management recommendations;
- *knowledge driven*: the DSS is a culmination of complex models built by expert contributions from multidisciplinary backgrounds;
- *real-data validated*: the DSS models are validated against real data collected on more than 90 sites across Europe;
- *ai enriched*: supporting a decision making process based on targets' optimization that is driven by emerging AI technologies for qualitative and quantitative modeling;
- *assessment*: assessing the initial supply of the five main soil functions based on data obtained from the LANDMARK database coupled with data entered by the user;

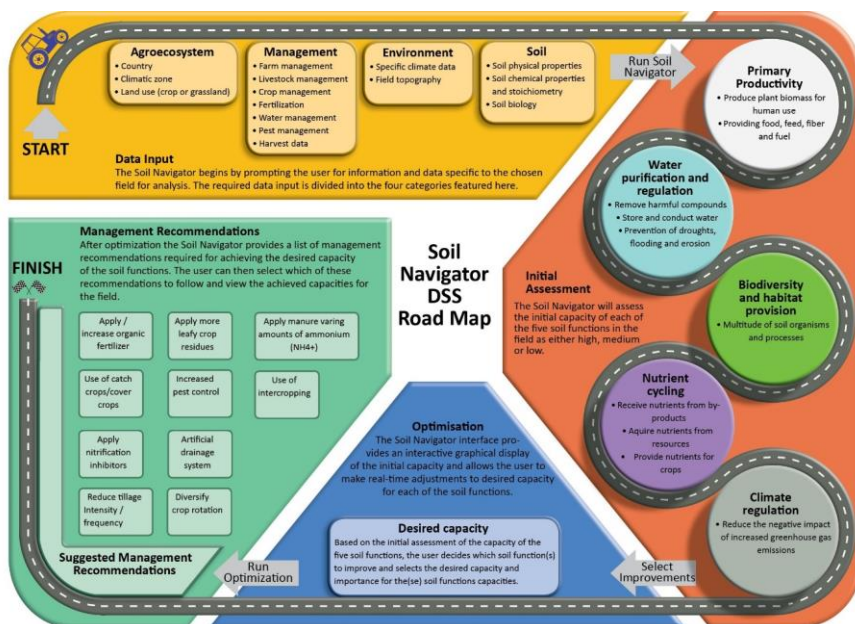
- *prioritization*: user defined prioritization of which soil functions to improve and to what level;
- *optimization*: providing a number of management recommendations to improve specific soil functions based on the demand and importance entered by the user.

The Soil Navigator assessing and optimizing soil functions. Most agricultural DSS are focused on short-term goals for the next growing season, such as increasing plant available nutrients or optimizing crop yield, whereas other important soil functions such as water purification and regulation, carbon sequestration and biodiversity provision are neglected. Making the right management decisions for long-term sustainability is therefore challenging, and farmers and farm advisors would greatly benefit from an evidence-based DSS targeted for assessing and improving the supply of several soil functions simultaneously. The Soil Navigator DSS provides a menu of user-friendly soil management strategies to manage the soil functions on individual fields on the farm (local scale). The menu is stratified by pedo-climatic zones, land uses (cropland and grassland) and farming systems.

The Soil Navigator DSS may assist farmers and farm advisors who are seeking answers to the above question by going through the following three steps:

- assessing the initial supply of the five main soil functions based on data obtained from the LANDMARK database coupled with data entered by the user;
- providing a number of management recommendations to improve specific soil functions based on the demand and importance entered by the user;
- evaluating the resulting supply of soil functions based on user preferences for the suggested management recommendations.

Methodology. In the designing of the Soil Navigator DSS qualitative multi criteria decision analysis has been applied using Decision EXpert (DEX) integrative modelling methodology. Five teams of scientific experts have structured, calibrated and validated DEX models for the five soil functions: primary productivity, water purification and regulation, carbon sequestration and climate regulation, nutrient cycling and biodiversity and habitat provision. Subsequently, the DEX models have been integrated into the Soil Navigator DSS to permit the assessment of these soil functions simultaneously, and to provide management recommendations for improving the supply of prioritized soil functions.



Future perspectives for the Soil Navigator DSS. By including all five main soil functions, the Soil Navigator DSS has the potential to complement the Farm Sustainability Tools for Nutrients included in the Common Agricultural Policy 2021-2027 proposal adopted by the European Commission. It could be used as an educational tool for farmers, farm advisors and students.

Reference

1. Debeljak M, Trajanov A, Kuzmanovski V, Schröder J, Sandén T, Spiegel H, Wall DP, Van de Broek M, Rutgers M, Bampa F, Creamer RE and Henriksen CB, 2019. A Field-Scale Decision Support System for Assessment and Management of Soil Functions. *Front. Environ. Sci.*, 7:115. doi: 10.3389/fenvs.2019.00115.
2. *** <http://landmark2020.eu>
3. *** <http://www.soilnavigator.eu>

FIRST SECTION

WATER AND SOIL



**PLANT NUTRITION AND SOIL CHEMISTRY
SOIL MANAGEMENT AND AGRICULTURAL TECHNIQUES
SOIL BIOLOGY
AGRICULTURAL CADASTRE
TOPOGRAPHY
CROPS IRRIGATION
LAND RECLAMATION SYSTEMS
PEDOLOGY
LANDSCAPE ARRENGEMENT
ENVIRONMENT ENGINEERING
LAND PLANNING
AGRICULTURAL CONSTRUCTIONS**

PLENARY SESSION

İNCİMAN Ahmet Rasih, ACAR Bilal

Selçuk University, Faculty of Agriculture, Department of Farm Buildings & Irrigation, Konya, Turkey

Uniformitatea apei a sistemelor de irigare prin picurare utilizate la irigarea porumbului în provincia Konya-Çumra, Turcia ❖ Water uniformity of drip irrigation systems used for maize irrigation in Konya-Çumra Province, Turkey

This study was conducted to determine water distribution uniformity of emitters at different drip irrigation systems using at maize farms in Çumra region of Konya, Turkey. Watering performance of drippers was classified by using two criteria namely Uniformity Coefficient, UC, and Emission Uniformity, EU. In results, UC varied from 68% to 84% with an average of 75% and water delivery class was 'Moderate' in accordance of such a mean value. EU varied from 44% to 71% with an average of 55%, and watering performance was 'Poor' or 'Unacceptable' in regard to average of EU value. Variations in emitter discharge rates in all examined drip irrigation systems were found higher than 10%. Drip irrigation system should be designated in accordance of hydraulic principles, installed by experienced people and timely maintenance-repair works are needed for maximizing water distribution uniformity consequently improvement grain/ silage yield as well as more economical returns.

Key words: maize, drip irrigation systems, watering efficiency of drippers

**LUCA Alexandru-Lucian, STICEA Andrei-Stefan, TAMASANU Fabian,
LUCA Mihail**

"Gh. Asachi" Technical University Iasi, Romania

Cercetări privind starea structurală și funcțională a canalelor de alimentare din sistemele de irigații ❖ Research on structural and functional status of supply channels in irrigation systems

The paper presents a series of results regarding the structural and functional analysis of the supply channels from the irrigation systems located in the eastern part of Romania. The results were obtained by conducting technical expertise, field studies and research and analysis of design documentation. Irrigation systems in Romania were built 40-60 years ago, and most of them are in operation with varying degrees of infrastructure degradation. The degradation of the structural components of the irrigation system determined the appearance of water losses and the decrease of the exploitation efficiency on components and on the whole system. In general, the infrastructure of large irrigation systems (catchment, basic pumping and re-pumping stations, supply channels, etc.) is operated by the territorial administrations of land improvements. The exploitation of the irrigation plots is done by private units that own the irrigated lands. Research conducted over about 15 years has shown the state of advanced degradation of supply channels and a significant decrease in their operating yields up to 40-60%. The absence of maintenance and repair works, but also of rehabilitation and modernization works determined the degradation of the flow section and of the waterproofing system. The main degradation phenomena are represented by excessive clogging, subsidence on the perimeter of the canal, destruction of the sealing joint at the joint of the slabs, cracking - breaking - displacement of the waterproofing slabs of the wet perimeter of the canal, etc. Important degradations are highlighted in the constructions on the canals: hydrotechnical derivation nodes, underpasses of roads, water intake of the pumping stations, etc. All this causes a large part of the volume of water transported by the canals to be lost through infiltration. The current structural and functional state of the irrigation canals requires the immediate application of rehabilitation works.

Key words: waterproofing, water loss, flow section, hydraulic efficiency

CALISTRU Anca-Elena, ȚOPA Denis Constantin, AOSTACIOAIEI Tudor, JITĂREANU Gerard

UASVM Iasi, Romania

Efectele sistemului No-till vs. conventional asupra proprietăților fizice ale solului și a producției ❖ No-till vs. conventional tillage effects on soil physical properties and yield

No-till agriculture applied in temperate regions can lead to soil structure improvement, better soil moisture and accessibility for the plants, better soil microorganism activity, along with higher yields. The research assesses the impact of no-tillage in comparison to conventional soil tillage system, on soil physical properties and yield, applied at the Ezareni Farm, of UASVM Iasi, in the NE part of Romania. The crop rotation included winter wheat, maize, sun-flower and winter peas. We measured bulk density, soil porosity, pore classes and yield. Soil samples

were collected in three development stages of the crops (before sowing, during vegetation and at harvest). For the bulk density, the samples were collected in 5/5.1 cm metal cylinders. The data regarding the porosity and pore size classes were obtained after CT scans, on soil aggregates collected from the field. Soil managed under no-tillage system showed better conditions for crop development. Bulk density had lower values in the conventional variant, due to soil loosening, but for the conservative variant, the valuable pore size classes, which retain the water and assure its circulation, had a better representation in this soil tillage system. However, climatic conditions have a great influence on yield, due to more and more frequent drought.

Key words: no-till, conventional tillage system, soil properties

STICEA Ștefan-Andrei, LUCA Alexandru-Lucian, MARCOIE Nicolae, LUCA Mihail

"Gh. Asachi" Technical University Iasi, Romania

**Studii și cercetări privind pierderile de apă din sistemele de irigație ❖
Studies and research on water losses of irrigation systems**

The paper presents the results of research on water losses in the structural components of irrigation systems in operation for a long time. Modern irrigation systems in Romania were made about 50-60 years ago. After 1990, about 25-30% of them are in operation. The advanced degree of wear of the irrigation system infrastructure, especially the supply channels and the supply pipes determines the appearance and maintenance of water loss. Research conducted on a series of irrigation systems in eastern and southern Romania, with different operating periods, but all performed before 1990, highlighted the complexity of the process of degradation of structural elements and the development of water loss. The degradation of the structural components of the supply channels and of the supply pipes determined the appearance of water losses and implicitly, the decrease of the hydraulic efficiency. The research highlighted the excessive degradation of the supply channels of the pumping stations through the action of the environment in the site, but also the absence of maintenance works. The discharge pipes are worn, and the channels have cracks and ruptures of the waterproofing material through which continuous water losses occur. The existing hydraulic installations in the manholes, in the pumping stations, in the hydrotechnical nodes on the canals are worn and have high water losses. The use of European funds requires the presentation of measures to reduce water losses. Irrigation systems are currently in the management of two entities: the state manages the basic infrastructure (basic pumping and pumping stations, main discharge pipes, supply and distribution channels); owner associations manage irrigation plots. Each entity manages a portion of the water losses. The research showed that the private system that owns the irrigation plots was more concerned with reducing water losses.

Key words: basins, canals, pipes, water leaks, hydraulic efficiency

AGAPIE (MEREUȚĂ) Ioana, LUCA Mihail, GHERASIM Paul-Marian

"Gh. Asachi" Technical University Iasi, Romania

Monitorizarea stabilității temporale a barajului Podișu din județul Iași prin măsurători topografice avansate ❖ Monitoring the temporary stability of the Podișu Dam from Iasi County by advanced topographic measurements

The paper presents elements of analysis of the temporal stability of earth dams by using topographic methods. Structural deformations and displacements are determined and processed by data obtained from advanced topographic studies on the geometry of the dam construction. The studies and researches were carried out for the Podișu earth dam located on the Valea Oii river, Bahlui river basin, Iași county. Special hydrological events recorded in recent years in the Bahlui river basin and especially on the Valea Oii river, have influenced the stability of the earth dams in cascade in this area. Monitoring the structural condition of dams and obtaining stability analysis data were made by topographic surveys in 2006, 2017, 2019. To carry out in accordance with the legislation in force the monitoring of the behavior of constructions, they must be equipped with settlement tracking landmarks but also fixed landmarks. This situation is not fulfilled at most class C and D earth dams. In the absence of tracking marks, in 2019 four landmarks were installed at the Podișu dam and a local tracking network was created. With the help of topographic measurements, the constructive elements of the earth dam were reconstructed and the analysis base of the stability model was restored (situation plan, longitudinal and transversal profiles, constructive details etc.).

Key words: database, deformations, topographic plan, profiles, settlement landmarks

BOGATÎ Eugen, VACARCIUC Liviu, BREAHNĂ Elizaveta

State Agrarian University, Moldova

Vinul IGP - un algoritm în afacere prin afinitatea plaiului în Moldova ❖ PGI wine – an algorithm for business through the affinity of the region of Moldova

The publications from Moldova, XVII-XIX centuries, truthfully reflect the viticulture microzones near the rivers: Siret, Prut, Raut, Nistru to the Bug with favorable eco-climatic conditions for wine production, especially near the estuary from Cetatea Alba. The North Pontus and the wine-growing of the Geto-Dacians represent the old tradition of the Tyras settlements of the Thracian tribes. The wine trade expanded towards Greece, Venice and Russia. The wines from monasteries with local varieties stood out for their quality: Feteasca, Francusa, Galbena, Mustoasa, Coarna, Rara neagra, Grasa. Today, the National Office of Vine and Wine submits unique requirements for PGI and DOC wines, it is an ambition to revive the famous name of the vineyard of another time: Ciumai, Cricova, Copciac, Purcari, Romanesti, Truseni, some already having a great number of medals in the international wine competitions. With the creation of the Cadastre of vineyards in Moldova, the task is to attract as many producers with geographical name, with their own original style and image for the internal and external consumer.

Key words: grapes, PGI wine, factors, quality, trends, priorities, attractiveness

FILIPOV Feodor, BODALE Ilie, STOLERU Vasile

UASVM Iasi, Romania

Ameliorarea stratului subarabil de sol compact din cadrul solarilor cultivate cu legume în sistem ecologic ❖ Rehabilitation of under-ploughed compacted layer of tunnels soils growth with organic vegetables

The main aim of study is to propose a method to diminish the negative effects of the dense soil layer (also called: plowpan, plow sole or tillage pan) on the vegetables growing in high plastic tunnels established on the soils with from north – east of Romania. At carrying out of the soil works in ecological system used for vegetables growth, such as polytunnels, it is important to be respected the following principles: (i) the fresh organic matters do not be incorporated into soil; (ii) to avoid the mixing of pedogenetic horizons by deep ploughed work because at the depth greater than 20 cm there are not favorable conditions for the microbial activity; (iii) the soil loosening work should be carried out in autumn after the composting of vegetal remains and organic fertilizers. The purpose of this paper is to present however a new variant of soil loosening up to 40-50 cm depth in accordance with the above mentioned principles. We consider that the proposed method is useful for farmers who grow vegetables in an ecological system because it is well known that there are severe restrictions of plants growth in under ploughed compacted layer. After loosening of under-ploughed compacted soil is improving water and the air soil permeability, the useful water capacity, the water storage capacity, the aeration porosity and so-called inactive. At the same time, the negative effects of water stress and droughts in the summer months will be diminished. The main advantage of the proposed method is to maintain the pedo-fauna biodiversity.

Key words: plowpan, organic matters, pedo-fauna biodiversity

ACATRINEI Ligia

Biological Research Institute - Iasi, Romania

Analiza capacității fotosintetice la *Amorpha fruticosa*, *Acer negundo* și *Ailanthus altissima*, plante invazive vs. plante native din zone ale RBDD ❖ Photosynthetic capacity analysis of *Amorpha fruticosa*, *Acer negundo* and *Ailanthus altissima*, invasive plants vs native plant in RBDD areas

The purpose of this study is to analyse gas-exchange parameters and chlorophyll synthesis in order to establish the photosynthetic capacity of some ligneous plants with invasive behaviour in comparison with native trees in areas of Danube Delta. The investigation was carried out near Razelm Lake (Bestepe hill), a xerophilous coastal meadow with clumps of trees (fallow vine plantation) and along Chilia branch in riparian galleries, with willow and poplar, in vernal season (in June). In Bestepe station the lithologic substrate is dominated by limestone and types of soil are calcareous soil or different type of chernozem. In Plaur station soil is aluviosol gleic district soil. Photosynthesis registered lower values in *Amorpha fruticosa* (3.53 $\mu\text{mol m}^{-2}\text{s}^{-1}$) in comparison with *Populus alba*, young plantation (33 $\mu\text{mol m}^{-2}\text{s}^{-1}$).

s-1), lower value in *Ailanthus altissima* (13.5 $\mu\text{mol m}^{-2}\text{s}^{-1}$) in comparison with *Crataegus monogyna* (15.65 $\mu\text{mol m}^{-2}\text{s}^{-1}$) and *Fraxinus ornus* (14.54 $\mu\text{mol m}^{-2}\text{s}^{-1}$), comparable in *Acer negundo* with *Amorpha fruticosa* (close to 3.5 $\mu\text{mol m}^{-2}\text{s}^{-1}$). Respiration and transpiration were direct proportional with photosynthesis rate. Photoassimilatory pigments represented by chlorophyll a, chlorophyll b and carotenoids as total registered higher values in *Ailanthus altissima* (1.92 mg/g fr.w) than in *Crataegus monogyna* (1.28 mg/g fr.w) and respectively, *Fraxinus ornus* (1.48 mg/g fr.w) in Bestepe station, higher in *Amorpha fruticosa* (4.52 mg/g fr.w) than *Acer negundo* (3.08 mg/g fr.w) in ruderal area (Plaur II) and close value in *Amorpha fruticosa* and *Populus alba* (close 3.5 mg/g fr.w) in riparian plantation (Plaur I). Analysis of photosynthetic capacity revealed the competition strategy between invasive plant and native or even among invasive one, especially co-dominant species such as *Amorpha fruticosa* vs. *Populus alba*, *Amorpha fruticosa* vs *Acer negundo*, *Ailanthus altissima* vs. *Crataegus monogyna* and *Fraxinus ornus* in all studied areas.

Key words: *Amorpha fruticosa*, *Acer negundo*, *Ailanthus altissima*, photosynthesis, photo-assimilating pigments

COJOCARU Olesea, BUGA Cătălina

State Agrarian University, Moldova

Exteriorizarea secetei în Republica Moldova - consecințe, pierderi și variație economică ❖ Exteriorization of the drought in the republic of the Republic of Moldova - consequences, losses and economic floating

Natural risks have been and are for agriculture the negative factor, which needs to be taken into account in the development of the agricultural sector. Due to the fact that the Republic of Moldova is located in a climatic zone with insufficient humidity, it is periodically subject to the influence of particularly strong droughts. Droughts in recent years confirm the insufficient level of adaptation of agriculture in the Republic of Moldova to drought conditions, which more and more frequently and with increased intensity, especially in recent years, affect the agricultural sector. This article provides a brief analysis of the general synoptic mechanism of drought genesis in the Republic of Moldova, types of drought, economic impact, probability of occurrence, drought register for the period of X-XXI centuries. The authors emphasize from the beginning the great variety of dangers that appeared in this territory, giving us concrete data and examples. Also in this paper is described the fact that out of all the dangers appeared on the territory of the Republic of Moldova, as well as all over the world, drought prevails, caused by climate change. The completion of the drought register by 2020 indicates a general trend of increasing the frequency of their production, due to the anthropogenic impact on the environment and regional and global climate change. Through this work, the author makes a modest contribution to the study of natural hazards in the Republic of Moldova, with a great destructive potential and which can cause extremely great damage to the economy and the national environment. From this perspective, it is

necessary for agricultural entities to analyze the probability of damage and their assessment, because the specifics of their field of activity, are environments in which the risk of drought can manifest itself, mainly. Thus, it becomes necessary to develop urgent as well as long-term measures to reduce the risk of drought.

Key words: agricultural sector, drought, economic impact, natural risk, soil moisture reserves

BALAN Isabela, CORDUNEANU Flaviana, ȚOPA Denis, CRENGANIȘ Loredana, CAZAN Dragoș, BUCUR Daniel

UASVM Iasi, Romania

Modelarea bidimensională a scurgerii în zone largi rurale și urbane cu ajutorul softului HEC-RAS. Studiu de caz - orașul Negrești ❖ HEC-RAS assisted 2D flow modeling for large rural and urban areas. Case study - Negrești Town

The paper presents how to build a model that simulates the transit of a high flood in large rural and urban areas. The HEC-RAS software uses as a database a background map created with the RAS-Mapper tool from the Digital Terrain Model and the synthetic flood hydrographs with the occurrence probabilities of 1: 2, 5, 10, 25, 50, 100 and, 1: 200 years. Finally, two-dimensional hydrodynamic files are obtained that highlight the flow, water velocity, water level and the extension of the flooded areas. The two-dimensional model is calibrated with the measured values of the water level in the studied area and the maximum limit of the historical flood recorded by the physical landmarks. The model also uses appropriate roughness parameters for the land use categories within the analyzed area. The case study shows the extension of the floodplains on the Google Earth map for each simulated synthetic flood.

Key words: Two-Dimensional Modeling, HEC-RAS, flood hydrographs, RAS-Mapper

POSTER SESSION

BALIUK Sviatoslav, ZAKHAROVA Maryna, VOROTYNTSEVA Ludmila, NOSONENKO Oleksandr

"O.N. Sokolovsky" Institute for Soil Science and Agrochemistry, Ukraine

Managementul durabil a solurilor irigate în agricultura Ucrainei ❖ Sustainable management of irrigated soils in Ukrainian agriculture

In the structure of land resources of Ukraine there are significant disproportions, the deepening of which can be a threat to the environment and living environment, as well as the effectiveness of economic activity, sustainable development of the national economy. Irrigation and drainage strategy of Ukraine until 2030 can to ensure sustainable ecologically balanced development of agriculture in Ukraine by modernization, rehabilitation and expansion of irrigation systems. The soil cover of Ukrainian irrigated land is featured a significant dissemination of poorly

productive and degraded soils if unsustainable agricultural methods are pursued. Monitoring of the fertility of the irrigated lands, directed to the formation of the models of steady, ecologically safe and economically effective agriculture is required. The complex of measures to manage the fertility irrigated land was developed by authors. Analysis showed that investment along priority irrigation systems would require more than \$ 3 billion. The main sources of finance for the of the complex of measures in Ukraine include the following: projects and grants for capacity development of the institutions; international development loans; private investment through leasing, regular bank loans and farmers' own capital. Bearing in mind the limited financial resources in the country and considering an amount of expenses to implement these goals, the economy-experts think it important to be guided by criterion of obtaining a maximum ecological effect. Monitoring of the irrigated soils fertility, directed to the formation of the models of steady, ecologically safe and economically effective agriculture is required. The complex of measures to manage the soil fertility, will be improve their agro-ecological condition and use level of irrigated land of Ukraine.

Key words: irrigation system, irrigated soil, soil management, sustainable management

LEAH Tamara, CERBARI Valerian

"Nicolae Dima" Pedology, Agrochemistry and Soil Protection Institute, Moldova

**Evaluarea agriculturii conservatie asupra proprietăților solului în rotația culturilor cu leguminoase în agricultura Republicii Moldova ❖
Evaluation of the conservative agriculture on soil properties in crop rotation with legumes in agriculture of the Republic of Moldova**

The paper presents the experimental results regarding the changes in the properties of degraded arable ordinary chernozem from southern Moldova and the yields of agricultural crops in 5-field crop rotation with incorporation into the soil of two harvest of vetch green mass as organic fertilizer in the first agricultural year. The results carried out in 2015-2019 showed that the introduction in the agricultural year by discussing and plowing into the soil of two green mass of vetch on a field as "occupied", led to restoration of the physico-chemical properties of the arable layer 0-20 cm and increasing of crop yields. The bulk density of 0-20 cm soil layer from unfavorable became very favorable, and the resistance to penetration from high and very high, became extremely low and low, which contributed to the easy penetration into deep the roots of plants. The structure in the soil layers became agronomically favorable. However, the hydrostability of the structure of the soil layers 0-10 cm and 0-20 cm did not change, become from "very small" to "small". The small change in the positive direction of the hydrostability is explained by the peculiarities of the texture, that is loamy-dusty with high fine sand content. The porosity values in the soil layers correlate with the apparent density values and are favorable for ensuring a normal regime of aeration in the soil. The organic matter content increased by 0.16-0.26% in the five years of researches. The barley harvest in 2016 was 7.1 t•ha⁻¹, the increase - 2.2 t•ha⁻¹, the monetary value of the harvest

increase: 2.2 t barley grain x 2200 Moldovan lei (MDL) = 4840 MDL. The rapeseed harvest in 2017 was 4.1 t•ha⁻¹, the increase - 1.0 t•ha⁻¹, the monetary value: 1t rape seed x 7100 MDL = 7100 MDL. The wheat harvest in 2018 was 4.6 t•ha⁻¹, the increase - 0.8 t•ha⁻¹, the monetary value: 0.8 t grain wheat x 3300 MDL = 2640 MDL. The sunflower harvest in 2019 was 3.3 t•ha⁻¹, the increase - 0.5 t•ha⁻¹, the monetary value: 0.5 t sunflower seeds x 5300 MDL = 2800 MDL. The results conducted in 2015-2019 confirmed that the preventive restoration of the quality state of the degraded arable soils is absolutely necessary to be carried out until the implementation or in the process of using the conservative agriculture system, based on No-till or Mini-till.

Key words: conservative agriculture, legumes, crop rotation, benefits, soil properties

POPOV Leonid, KUHARUK Ecaterina

"Nicolae Dimo" Pedology, Agrochemistry and Soil Protection Institute, Moldova

Conservarea și utilizarea rațională a umidității din sol ❖ Preservation and rational use of soil moisture

Land resources monitoring is currently receiving special attention. The need to double world cereal production by 2030 is called into question due to declining arable land per capita, declining drinking water and irrigation, increasing the risk of soil degradation and environmental pollution, reducing the efficiency of agricultural land use due to projected climate change. The soil, as a means of agricultural production, has specific features that make it different from other means of production. It cannot be multiplied. Agricultural practice has shown that the production capacity of the soil increases with the use of modern agricultural technologies (machines and tools, fertilizers), carrying out the necessary land improvement works, preventing and combating erosion, ensuring a positive or balanced balance of organic matter in the arable layer. of its arable. As a result of the fragmentation of the agricultural land, the change in the system of subsidies and access to markets, the decrease of agricultural land productivity, associated with soil degradation, lack of irrigation infrastructure, etc., in the Republic of Moldova there was a significant decline in production volume. farm. The Republic of Moldova is an extremely vulnerable country to climate change. Currently, the aridity of the climate is increasing, droughts have intensified. In this context, the rational use of water reserves, accumulated in the soil from precipitation, the placement of irrigation among the primary loads, especially for the southern area, where the humidity coefficient is 0.5-0.6, and droughts are repeated every three years, it becomes a state task of first necessity. The scientific assurance of the works of protection, improvement and sustainable use of the land resources is indispensable, for the accomplishment of the land improvement measures that obligatorily foresee also the rational use of the ground water.

Key words: soil, water, soil moisture, precipitation

FILIPCIUC Vladimir¹, ROZLOGA Iurie¹, BOAGHE Lilia¹, COJOCARU

Olesea²

¹"Nicolae Dimo" Pedology, Agrochemistry and Soil Protection Institute, Moldova

²State Agrarian University, Moldova

Cercetări privind acțiunea apei mineralizate asupra caracteristicilor chernoziomului tipic ❖ Research on the action of mineralized water on the characteristics of ordinary chernozem

The agro-industrial complex of the Republic of Moldova operates in risky conditions. Due to its geographical location, the territory of the republic falls within the area with insufficient and unstable humidity. The annual amount of atmospheric precipitation varies between 380 and 550 mm. Long-term research has established that the main limiting natural factor in obtaining high and stable harvests is the low level of accessibility of plants to accessible water. In the conditions of the republic one of the most effective measures to optimize the soil moisture regime is irrigation. Obviously, it does not exclude the application of agrotechnical processes for storing water in the soil. Soil irrigation as a method of improving water regime has been known since ancient times, but so far there are a number of complicated problems related to the reaction of some soil types to changes in water regime and water quality used for irrigation. Thus, the irrigation of chernozems with mineralized water ($> 3000 \text{ mg/l}$) does not cause essential changes in the soil adsorbent complex and does not lead to its secondary salinization. The works carried out aimed at testing and assessing the effectiveness of methods to prevent and combat soil degradation during irrigation. The results of the researches highlight the following: the use of good quality water in the irrigation of chernozems has as a consequence the weak decalcification of the plowed layer, the reduction of the hydrostability of the structure and its compaction; irrigation of chernozemic soils with surface and deep (alkaline) water leads to secondary alkalization and solonization, degradation of the structure, peptization of fine clay, secondary compaction and reduction of water permeability; the degrading effect of chernozems irrigation with water of poor quality can be mitigated by applying organo-calcium amendments or treating the water used with soluble calcium compounds. The experimental polygon from Cozești commune, Singerei district, is located on a straight slope with a south-eastern exposure, with a slope of 2%. The soil is presented by ordinary chernozem strongly deep humic clay-loam. It is irrigated for 9 years. The water used is deep water with an unfavorable chemical composition and a strongly alkaline reaction. The evolution of secondary pedological processes and changes in physical and chemical properties in irrigated soils were established by the method of "pair profiles" (irrigated soil-non-irrigated soil). This method is widely used in pedo-ameliorative study and is considered feasible in the quantitative determination of soil characteristics.

Key words: ordinary chernozem, chemical composition of water for irrigation, Cozești village, quality indicators, Republic of Moldova

CĂLUGĂR Adina

Biological Research Institute - Iasi, Romania

Structura comunităților de mezofaună edafică din unele ecosisteme

afectate de plante invazive din Rezervația Biosferei Delta Dunării ❖
Edaphic mesofauna communities structure in some ecosystems
affected by invasive plants in the Danube Delta Biosphere Reserve

Edaphic mesofauna is directly as well as indirectly involved in decomposition and mineralization of organic matter, and the regulation of nutrient cycles. These organisms are associated with soil quality and plants diversity. Invasive alien plants into an ecosystem can determine dramatic changes in both the native plant and animal assemblages. Consequently, the purpose of the article is to highlights a potential influence of invasive species (*Elaeagnus angustifolia*, *Amorpha fruticosa*, *Ailanthus altissima*, *Vitis vinifera*, *Cannabis ruderalis*) on the quantitative and qualitative parameters of the edaphic mesofauna, on the main systematic and trophic groups. The assessment of the biodiversity of the edaphic microarthropods is done by inventory and analyse the mites of the *Parasitiformes* (*Mesostigmata* order) and the *Acariformes* (orders *Trombidiformes* and *Sarcoptiformes* - *Oribatida* subdivision and *Astigmatina* cohort), an order belonging to the class *Entognatha* (*Collembola*) and insects as a whole and other edaphic microarthropods. In all studied plots the mites have much higher densities than other groups of mesofauna. Among mites oribatids are predominant in almost of the investigated plots with a maximum of 84% in the plantation with Canada poplar and *Amorpha fruticosa*. Another group of mites, the *Trombidiformes* characterized by a various trophic regime, is also with high densities, the highest one being registered in the ecosystem with *Ailanthus altissima* (81%). The ratio of the main detritomicrofitophagous groups (oribatids / collembolans), which is considered a good bioindicator of the quality and humification stage of an organic substrate, was superior in all the examined plots. These results have shown that humification is predominant, and the nutrient cycle is slower in all investigated plots. It is remarked a small number of collembolans in all analysed samples and also, an absence of this decomposer group of mesofauna, a group that generally has a high share in the whole fauna of edaphic microarthropods, especially in good humidity conditions.

Key words: microarthropods, soil, alien plants, Danube Delta

ACATRINEI Ligia, FEODOR Filipov

Biological Research Institute - Iasi, Romania

Efectele mulcirii cu polietilenă asupra proprietăților solului și asupra
particularităților fiziologice ale tomatelor din cultura ecologică ❖
Polyethylene mulching effects on soil properties and physiological
traits in tomato under ecological crop technology

The aim of this study is to assess the influence of covering with black polyethylene mulch on soil properties and also of plant physiological behavior. Soil respiration and plant physiological traits were analyzed by portable infrared system (LCi, ADC Bioscientific). Analyzed parameters were: soil net CO₂ exchange rate (NCER), soil respiration (Ce) and water humidity (W flux); photosynthetic rate, transpiration, and stomatal conductance and also sugars leaf content (monosaccharides,

disaccharides and polysaccharides). Plant material consists by Prekos tomato variety cultivated in protected organic system at The Vegetable Research and Development Station Bacau (SCDL Bacău). Our analysis showed that black plastic mulch on the soil surface favored soil compaction especially on the space between tomato plant rows. The strong soil compactness state was reflected by the high bulk density values and other indirect indicators as smooth soil surface and the cracks networks. Soil gas-exchange showed that net CO₂ exchange rate of was 7.94 $\mu\text{mol m}^{-2}\text{s}^{-1}$ and also soil respiration of 77.4 $\mu\text{mol m}^{-2}\text{s}^{-1}$ are both higher in variant which are not covered with black plastic mulch. In variant with black plastic cover because of higher soil moisture the water flux between air and soil are increased. Photosynthesis registered a slight increase, having the value of 10 $\mu\text{mol m}^{-2}\text{s}^{-1}$ in flowering phenophase (June) and about 11 $\mu\text{mol m}^{-2}\text{s}^{-1}$ in ripening phenophase (July) in uncovered with polyethylene variant. The polyethylene mulch variant recorded a higher rate of photosynthesis in June of 13 $\mu\text{mol m}^{-2}\text{s}^{-1}$ than that recorded in July, approximately 6 $\mu\text{mol m}^{-2}\text{s}^{-1}$, showing a decreasing photosynthesis. In the maturation stage, with the variant with black plastic mulch on the soil surface, the stomatal conductance increased and that was correlated with the decrease of photosynthesis and also a higher amount of disaccharides was observed. During the studied period, the variant uncovered with black plastic (polyethylene) registered a small variation of the photosynthesis rate, and the polysaccharide content in the leaves is higher in comparison with covered variant.

Key words: polyethylene much, Prekos tomato variety, soil respiration, photosynthesis rate, sugar leaf

CARA Irina Gabriela, RAUS Lucian, ȚOPA Denis Constantin, JIȚĂREANU Gerard

UASVM Iași, Romania

Evaluarea conținuturilor disponibile de microelemente din soluri prin spectrofotometrie de absorbție atomică ❖ Assessment of soil available microelements by AAS technique

Soil is one of important source of available microelements needed by plants. An AAS method for the quantitative analysis of Zn, Cu, Fe, Mn in soil samples has been developed, validated and applied to analyze the concentration of these microelements. Soil samples were dried, homogenized and extracted with a mixture of 1n ammonium acetate and 0.01 m EDTA-H₂ at pH 7. All measurements were done using an high resolution continuum source, atomic adsorption spectrometer AAS (ContrAA 700, Analytik Jena, Germany) equipped with a xenon short lamp with UV arc in hot spot mode and a high resolution echelle grating monochromator. The flame was generated using Air-Acetylene mixture with 99.95% purity. All reagents and chemicals used in this study were analytical grade and prepared by using high purity deionized water obtained from a Milli-Q water purification system (Millipore). Nitric acid (HNO₃ 65%, Merck, Germany) and 1000 mg L⁻¹ (Zn, Cu, Fe and Mn) stock standard solutions (Merck, Germany) were used. The method was validated for Zn, Cu, Fe, and Mn at 0.1 and 1.0 mg Kg⁻¹. The

recoveries were 93.5 – 98% with relative standard deviation of 1.4%. The proposed method is suitable for routine soil analysis.

cuvinte cheie (engleza): Microelements, Soil, AAS.

Key words: microelements, soil, AAS

**TOTOLEA Cristian, TOTOLEA (HUȚANU) Adriana Mihaela,
TOTOLEA Ionuț Bogdan, BUCUR Daniel**

UASVM Iasi, Romania

Prevenirea și combaterea eroziunii solului în perioada 1990-2020 pe terenurile agricole înclinate din județul Bacău ❖ Soil erosion prevention and control on sloping agricultural land in Bacău County during 1990-2020

The changes in the ownership structure of agricultural lands as a result of the application of the Land Fund Law in 1991 determined the diminution of the preoccupations for soil erosion control on the agricultural lands located on the slope of Bacău County. The significant increase of the sloping arable areas plowed from the hill-valley was favored by the accentuated fragmentation of the large fields in the rectangular plots oriented predominantly with the long side on the line of the highest slope. The centralized situation at the county level shows that the arable area on the slope includes almost 83,500 plots with an area of 1 to 2 ha. Strip culture systems, with grassy strips, on bench terraces and agroterraces, more effective in terms of anti-erosion than simple work along contours, currently represent less than 11,000 ha, decreasing by about 3.2 times compared to the situation in 1990. The high erosive potential of these lands, the inappropriate anthropic intervention in the natural environment as well as the existence within each category of land use of some lands in an advanced state of degradation by slope processes require the reconsideration of anti-erosion concerns. Among the agricultural uses the most affected is the arable area (2036 ha) and among the processes responsible for the almost complete loss of soil production capacity on some sloping agricultural lands, the excessive surface erosion is on the first place (1499 ha) followed by the gully erosion (610 ha) and landslides (169 ha).

Key words: soil erosion control, land use, strip crops, buffer strip, agroterraces, soil fertility

DINCĂ Lucian Constantin, DINCĂ Maria

"Marin Drăcea" National Institute for Research-Development in Forestry - Brasov, Romania

Caracteristicile solurilor forestiere din județul Covasna ❖ The characteristics of forest soils from Covasna County

Forest soils represent an important resource for Covasna County, characterized by a large surface of both private and national forests. The forest soils (that differ from agricultural soils) were analysed based on the following chemical characteristics: soil's solution reaction, base saturation degree, humus and total nitrogen content and the total cationic exchange capacity. A total number of 15 soil types were analysed in Covasna County. The most widespread ones are eutric cambisol and

dystric cambisol, which cover together 77% of the surface. At the same time, the most acid soils are entic podzols, while the most alkaline are rendzic leptosols. The majority of soils are mezobazic, moderately or intensely humiferous, well and very well supplied with nitrogen. Entic podzol has a very large cationic exchange capacity, while all other soils have high capacities. The chemical characteristics of forests soils from Covasna County are favourable to forest vegetation, a fact that can be observed by the stands' productivity.

Key words: forest soils, eutric cambisol, dystric cambisol, humus, base saturation

COJOCARU Olesea, BUGA Cătălina

State Agrarian University, Moldova

**Seceta în Republica Moldova devine mai comună și intensă ❖
Drought in the Republic of Moldova becomes more common and intensive**

Droughts can be considered the most complex climatic phenomena, because they trigger several factors, namely: atmospheric precipitation, soil water reserve accessible to the plant, humidity and air temperature, evapotranspiration, wind speed, etc., these being the main climatic parameters that define the state of dry or dry weather. This article provides a brief analysis of the statistical data with the most frequent droughts on the territory of the Republic of Moldova. From this point of view, drought risk management is a set of rigorously established and organized activities, which, starting from the existing conditions and objectives of the entity, analyze risk factors in a security concept, in order to minimize risks and costs. Only the precise knowledge of the circumstances, causes of occurrence and legitimacy of manifestation of these phenomena, called in the literature natural hazards or risk phenomena, allows the adoption of appropriate measures to mitigate the negative effects and reconstruction of affected regions. Of particular importance to society is the earliest and most accurate prediction of natural disasters. Drought is a prolongation of insufficient rainfall and is a natural feature of the climate. It can occur in any climatic zone, but its characteristics can vary from one region to another. The evaluations show that the deficit of atmospheric precipitations is practically specific for the whole territory of the republic. The deficit of precipitations and their very uneven distribution condition frequent and intensive droughts. The probability of very strong droughts ($\leq 50\%$ of the climatic norm of precipitation) with catastrophic consequences in some months of the vegetation period on the territory of the Republic of Moldova is 11 - 41%.

Key words: affected regions, climate parameters, drought, mitigation measures, risk, Republic of Moldova

SIURIS Andrei

"Nicolae Dimo" Pedology, Agrochemistry and Soil Protection Institute, Moldova

**Eficiența agronomică și economică a utilizării deșeurilor de la
producerea de băuturi alcoolice pe cernoziom cambic ❖ Agronomic
and economic efficiency of the waste use from the production of
alcoholic beverages on cambic chernozem**

At present, the environment ecological status in the Republic of Moldova is deplorable in most natural and anthropogenic ecosystems. Waste from the alcoholic beverages production is often stored chaotically presenting a major danger to the environment soil, water, air, flora and fauna. There is no waste processing and recycling company in the country. This waste contains a significant amount of biophilic elements necessary for the nutrition of agricultural plants and the increase of organic matter in the soil. About 100 thousand tons of waste is accumulated annually in the Republic of Moldova. Waste from the production of alcoholic beverages contains 28 thousand tons of organic matter, 180 tons of nitrogen, 80 tons of phosphorus and 260 tons of potassium. For this purpose, two field experiments were organized at the Technological-Experimental Station "Codru", Codru commune, Chisinau municipality, where the residues from the production of alcoholic beverages were studied: wine yeasts and vinasa (waste from wine production), grain marc (waste from the production of rectified ethyl alcohol) on soil fertility and plant productivity. Research conducted in 2012-2019 showed that fertilizing the soil with cereal marc led to increased productivity of field crops. The increase in production on average is 868-1223 kg/ha of cereal units (30-42%) compared to the non-fertilized version with marc. Fertilization with waste from the production of alcoholic beverages increases on average over 9 years, the content of organic matter by 0.18-0.37% (4800-10000 kg/ha), mobile phosphorus by 0.3-1.0 mg/100 g soil (8.1-27.0 kg/ha), exchangeable potassium with 10-13 mg/100 g soil (230-300 kg/ha) for variants fertilized with waste. There was an increase in Sauvignon grape production of 0.9-2.3 t / ha (8-21%) on average for 9 years for wine waste variants. Wastes from the production of alcoholic beverages, applied to the soil as organic fertilizer have a significant economic effect, can be recovered and reintegrated into viticulture and phytotechnic sectors.

Key words: cambic chernozem, wine yeast, vinasa, cereal borhot, field crops

BUEMA Gabriela¹, HARJA Maria², LUPU Nicoleta¹, CHIRIAC Horia¹, FAVIER Lidia³, COADĂ NENCIU Daniela⁴

¹National Institute of Research and Development for Technical Physics, Iasi, Romania

²"Gheorghe Asachi" Technical University of Iasi, Romania

³Rennes University, Ecole Nationale Supérieure de Chimie de Rennes, France

⁴UASVM Iasi, Romania

Influența tipului adsorbent și a timpului de contact asupra adsorbției ionilor de cadmiu ♦ Influence of adsorbent type and contact time on Cadmium ions adsorption

Cadmium exhibits pronounced chemical reactivity. All combinations of cadmium are stable, relatively soluble in water and have a pronounced ionic character. The sources of water pollution with Cd (II) ions come from the metallurgical, steel, petrochemical, textile, extractive, inorganic and organic chemical industry. The materials based on fly ash are recommended as adsorbents in the treatment of waters contaminated with Cd (II) ions. Fly ash (A0) used in this work was collected from CET II Holoca (Iasi, Romania). A1-A6 materials were obtained after the treatment of A0 material with NaOH. For the study of Cd (II) ions adsorption onto

A0-A6 materials, 0.4 g of adsorbent were stirred with 50 mL of 250 mg/L initial Cd (II) concentration, pH 5, for a period of 120 minutes at room temperature. The experimental results demonstrate that with increasing of contact time, the quantity of Cd (II) ions adsorbed per unit mass of adsorbent increases. The adsorption process is fast in the initial stage, in the first 30 minutes being adsorbed more than 60% of the total amount of Cd (II) in the aqueous solution. A contact time value of 120 minutes can be considered as sufficient to reach equilibrium. The maximum adsorption capacity obtained are in the range of 9.18 mg/g - 49.33 mg/g.

Key words: cadmium, adsorption, pollutin

AGAVRILOAIE Oana-Maria¹, CUCOȘ Iulian², CIOBANU Gabriela¹, HARJA Maria¹, MOCANU Ionuț³

¹"Gheorghe Asachi" Technical University of Iasi, Faculty of Chemical Engineering and Environmental Protection, Romania

²"Gheorghe Asachi" Technical University of Iasi, Faculty of Civil Hydrotechnics, Geodesy & Environmental Engineering, Romania

³UASVM Iasi, Romania

Noi direcții de capitalizare pentru deșeurile lichide periculoase ❖ New capitalization directions for hazardous liquid waste

Hazardous waste result in large quantities from different branches, for example the factories in the metallurgical industry produce large volumes of hazardous waste as a result of cleaning and painting processes, in large printing houses used inks are obtained, on the other hand, small businesses, such as car services, shops that sell solvents, paints, private human and veterinary medical practices, pharmacies, etc. Residual lubricating oil is the most significant stream of hazardous waste in Europe [1]. The main harmful contaminants present in the residual lubricating oil are heavy metals, polychlorinated hydrocarbons and polyaromatic hydrocarbons, which are very toxic to human health and can cause damage to the environment if not destroyed or treated properly. Waste lubricating oils are classified as hazardous due to the content of metals derived from additives and those that go into suspension due to wear between the components of the installations [2]. In this paper the thermochemical technologies for hazardous liquid waste conversion were studied and the gasification process is promising for energy production and the disposal of large amounts of waste [2, 3]. Plasma gasification is the thermochemical process, used to produce synthetic gas, by the reaction between a gasifying agent and a material used as fuel, under conditions of high temperature and high pressure. Electricity consumption in the modern conversion refinery is increasing, and the need for additional energy capacity is quite common, as is the need to replace the old capacity. The design of a waste gasification plant requires careful fitting and integration of the various stages of the process to ensure optimum performance of the entire system. Gasification technologies and the combined cycle are well known; however, innovation is their integration to maximize their overall efficiency. The synthesis gas which is obtained is composed mainly of CO and H₂ and is used either as a raw material in the manufacture of chemical products or as an energy source in special generators and turbines. A substantial amount of heat

is available during the cooling of the syngas. In entrained flow oxygen gasifiers, approximately 15-20% of the thermal power contained in the raw material entering the gasification plant is eliminated by the cooling process. It increases to about 25% for air gasification. The available heat is completely recovered through a process that allows the efficient production of electricity. The plasma gasification technology offers new directions for hazardous liquid waste neutralization and the conversion of it to products and energy. The process of gasification is widely studied for the conversion of biomass, but the liquid wastes gasification needs more attention as opportunities for the better use of resources worldwide.

Key words: gasification, waste management, residual oil

HUȚANU Cristian

UASVM Iasi, Romania

Realizarea lucrărilor de cadastru sistematic în perspectiva dezvoltării durabile a sectorului viticol și pomicol din România ♦ The carrying out of systematic cadastre works in the perspective of the sustainable development of the vineyard and fruit growing sector in Romania

In the perspective of the sustainable development of the vineyard and fruit growing sector in Romania, the European Union finances projects for the extension, modernization and maintenance in good conditions of the vineyard and fruit growing plantations, especially of those with tradition. The realization of these projects through systematic cadastre works would have the effect of obtaining a better rehabilitation and protection of the vineyards/fruit trees areas. For the revaluation of the potential of agricultural real estate, under the administration of the Didactic Resort Vasile Adamachi, Farm of University of Agricultural Sciences and Veterinary Medicine Iasi, were reconfigured the plots occupied with vineyards on an area of 14 ha and 7.7 ha with fruit trees and modernized with European Union funds, through the Agency for Payments and Intervention for Agriculture. When elaborating the projects for the modernization of the vineyard/fruit growing plantations, the following were taken into account: the main pedoclimatic conditions specific to the north-eastern area of Romania; obtaining a vineyard/fruit trees plantations with productive varieties, of superior quality, resistant to diseases and frost; the organization of the site is correlated with all the elements for combating soil erosion, as well as with ensuring the conditions for the mechanized execution of the works; streamlining the mechanized technological works by configuring the vineyards/fruit trees plots in larger areas, depending on the relief of the location. I suggest to the Cadastre and Real Estate Publicity Agency to develop the integrated system of cadastre and land register of the National Cadastre and Land Register Program as a "multi-purpose" system, allowing the Agency for Payments and Intervention for Agriculture to identify agricultural real estates, that have in their composition vineyards/fruit growing plantations, in order to encourage the owners of these plantations to access projects of extension, modernization and maintenance in good conditions of the vineyards and fruit growing plantations, financed from European Union funds. Through these systematic cadastre works

carried out at the level of administrative-territorial unit, the situation of the existing real estates in the cadastral/topographic plan and in the previous land registers, changes according to the current technical-legal situation.

Key words: tabulated real estate, systematic cadastre works, vineyard and fruit growing plots

SECOND SECTION

AGRICULTURAL TECHNOLOGIES



BIOLOGICAL AGRICULTURE
PASTURELAND AND FORAGE CROPS
PROCESSING OF AGRICULTURAL PRODUCTS
PLANT PATHOLOGY
PLANT PHYSIOLOGY
ECOLOGY
ENTOMOLOGY
CROPS SCIENCE
AGRICULTURAL MACHINERY
EXPERIMENTAL DESIGN IN AGRICULTURE

PLENARY SESSION

BURDUJAN Victor, DUBIT Daniela, MELNIC Angela

State Agrarian University of Moldova - Chisinau, Moldova

Productivitatea și calitatea boabelor orzului de toamnă Zimovii în experimente polifactoriale ❖ Grain productivity and quality of the Zimovyi winter barley variety in multifactorial field experiments

The paper presents the results of 3-year research studies on the productivity, content and amount of crude protein recorded by the winter barley variety Zimovyi in multifactorial field experiments. It has been established the effect of forerunner plants on the productivity of winter barley crops which was of 72.37%. On average, over 2 years of research, it was recorded the yield of 3609 kg·ha⁻¹ after the forerunner grain peas, while after the forerunner vetch-oat it was of 2507 kg·ha⁻¹. The effect of planting dates constituted 24.55%. The highest grain yield was obtained on the optimal planting dates - 3750 kg·ha⁻¹ after the forerunner grain peas and 2631 kg·ha⁻¹ on the admissible planting dates after the forerunner vetch-oats. The amount of crude protein in the winter barley grains is higher after the forerunner vetch-oats - 12.13%, exceeding the value of 0.16% obtained after the forerunner grain peas.

Key words: winter barley, forerunner plant, planting dates, productivity, crude protein

ȚÎȚEI Victor

"Alexandru Ciubotaru" National Botanical Garden (Institute) Chisinau, Moldova

Unele caracteristici biologice și calitatea biomasei la speciile *Lupinus angustifolius* L. și *Lupinus albus* L. în Moldova ❖ Some biological features and biomass quality of *Lupinus angustifolius* L. and *Lupinus albus* L. in Moldova

Fabaceae species play a crucial role in natural ecosystems and agriculture, because they have the potential to symbiotic fixation of atmospheric nitrogen, improve biological activity and soil structure, increase the quality and quantity of food and feed, bring improvements resource efficiency in various biorefinery systems. We have studied biological features, biochemical composition and nutritive value, and have esteemed the biomethane potential of aerial biomass of the *Fabaceae* species *Lupinus agustifolius* and *Lupinus albus*, which has been cultivated in the experimental plot of the National Botanical Garden (Institute) “Alexandru Ciubotaru”, Chisinau, R. Moldova, *Onobrychis viciifolia* were used as control variant. The results of our research revealed that the dry matter of harvested *Lupinus* species whole plants contained 166-206 g/kg CP, 86-110 g/kg ash, 221-258 g/kg ADF, 337-339 g/kg NDF, 31-40 g/kg ADL, 190 -218g/kg Cel and 116-141 g/kg HC, but control *Onobrychis viciifolia* - 176 g/kg CP, 96g/kg ash, 309 g/kg ADF, 447 g/kg NDF, 49 g/kg ADL, 260 g/kg Cel and 138 g/kg HC, respectively. The nutritional value of *Lupinus* green mass: 75.5- 80.9 % DDM, 72.9-76.6 % ODM, RFV 168-208, 13.45-13.96 MJ/kg DE, 11.04- 11.46 MJ/kg ME and 7.06-7.48 MJ/kg NEI in comparison with *Onobrychis viciifolia* - 66.9 % DDM, 61.5% ODM, RFV 142, 12.73 MJ/kg DE, 10.46 MJ/kg ME and 6.48 MJ/kg NEI. It has been found that the biomethane potential of the *Lupinus* substrates varied from 309 to 324 l/kg ODM. The *Lupinus agustifolius* and *Lupinus albus* is promising source of fodder and bioenergy production.

Key words: biochemical composition, biomethane potential, green mass, *Lupinus agustifolius*, *Lupinus albus*, nutritive value

TOADER George, CHIURCIU Viorica, FILIP Valentina, FLOAREA Cristian-Ionuț, MAIEREAN Nistor, TOADER Elena-Violeta, PETRE Constantin, ENEA Cătălin-Ionuț, NECHITA Ana-Maria, FÎNARU Nelly Lili, ILIE Leonard

UASVM Bucharest, Romania

Biopreparatele bacteriene: tehnologii de fertilizare alternative
fertilizantilor chimici ❖ Bacterial biopreparations: alternative
fertilization technologies to chemical fertilizers

The role of this article is to bring to the awareness of farmers the novelty of sustainable production systems, environmentally friendly, systems that gold the role to stop the pollution of agricultural crops as well as to convert certain agrifood waste into products intended for their use in different fields. activity. The purpose of this paper is to present and use the latest innovative technologies in the agricultural field and to replace the traditional pollutants (chemical fertilizers), so that the farmers can reach a much greater potential in relation to the registered productions. The role of the farmer is to obtain additional profit with innovative technologies and minimal investments. At the same time, it places great emphasis on what you get, namely on plant or animal foods. In the developed countries, there is a great emphasis on sustainable development, development that involves certain technologies of plant and animal production, technologies that have the role of

reducing the pollution of the environment, of ecologizing the soil and, implicitly of obtaining a big production compared to fertilizers or conventional chemicals. For farmers, the main goal is to increase production and, implicitly, profit. However, farmers do not place too much emphasis on food safety, which must be taken into account by any farmer. The goal of food safety is to produce healthy food, with a wide range of fertilizers (alternatives to chemicals), but especially cheap and adequate in terms of the needs and requirements of plants, humans and animals. In some countries, food safety comes first. Thus, the current goal has been exceeded by farmers, with a special focus on sustainable and sustainable, organic agriculture. To maintain this contribution, farmers have started using certain fertilizer products based on live bacterial cultures.

Key words: bacterial biopreparations, live bacterial cultures, biofertilizers

GEORGESCU Emil, CREȚU Alina, RADU Cristina, CANĂ Lidia

NARDI Fundulea, Romania

Rezultate privind combaterea *Tanymecus dilaticollis* într-o fermă comercială, din sud-estul României, în condițiile anului 2020 ❖
Results concerning *Tanymecus dilaticollis* control, in the commercial farm, from the south-east of Romania, in the conditions of the year 2020

The maize leaf weevil [*Tanymecus dilaticollis* (Gyllenhal, 1834)] represent one of the most destructive pests of maize crops in Romania, especially in the south and south-east of the country. Every year was attacked more than 1 million hectares cultivated with maize. This pest is very dangerous when maize is in early vegetation stages, from plant emergence until four leaves. After the ban of the seeds treatment with neonicotinoids in the Europe Union, no alternatives for seed treatment to control this pest remain available in our country. In this article, it has assessed both, seeds treatment with neonicotinoids and possible alternatives for controlling of the maize leaf weevil in conditions of the commercial farm located in the south-east of Romania. Seeds treatment with imidacloprid (600 g/l), cyantraniliprole (625 g/l) active ingredients, maize foliar treatment with deltamethrin (100 g/l), lambda-cyhalothrin (50 g/l) active ingredients, granules application at maize sowing, with chlorpyrifos (5 %), lambda-cyhalothrin (4 g/kg) active ingredients or two granules application, at maize sowing and after plants emergence with cypermethrin (0.8 %) active ingredients were assessed. The efficacy of the applied insecticides was determined by evaluating weevils attack intensity at the maize plants, at BBCH 14 stage, using a scale from 1 (plant not attacked) to 9 (plant destroyed). In the spring of 2020, weather conditions from the experimental site, during assessments period were unfavorable for weevils activity at the soil surface. Even if the pest density from the experimental location was high (10-15 insects/m²) however weevils attack at maize plants was low. At variant with seeds treated with imidacloprid active ingredient, maize attack intensity at maize plant was 3.86, at untreated variant attack intensity was 4.47 while at rest of the experimental variants, attack intensity ranged between 4.29 and 4.46. It has registered significant statistical differences

between weevils attack at maize plants from variant with seeds treated with imidacloprid active ingredient and the rest of the variants from this assessment ($p < 0.05$). In the weather conditions of the year 2020, from the experimental location from the south-east of Romania, there weren't registered significant statistical differences between seeds treatment with cyantranilprole active ingredient, maize foliar treatment with deltamethrin, lambda-cyhalothrin active ingredients, granules application with chlorpyrifos, cypermethrin, lambda-cyhalothrin active ingredients, and untreated variant ($p < 0.05$).

Key words: maize, weevils, control, alternatives, farm

PATROLEA Elena, ROBU Teodor

UASVM Iasi, Romania

Botanica și compoziția chimică a varietăților *Foeniculum vulgare* var. *dulce* Mill și *Foeniculum vulgare* var. *vulgare* Mill ❖ Botany and phytochemistry knowledge of *Foeniculum vulgare* var. *dulce* Mill and *Foeniculum vulgare* var. *vulgare* Mill: A review

Foeniculum vulgare Mill is an aromatic plant being a part of the Apiaceae family, which is acknowledged by humans from a long time ago. This plant can be cultivated in many parts of the world, and it is universally named as Fennel, even though the name can vary in each country. *Foeniculum vulgare* ssp. *vulgare* Mill is presented in three varieties: var. *dulce* (Mill.), commonly named sweet fennel, var. *vulgare* (Mill.) known as bitter fennel, and var. *azoricum* (Mill.) being the onion-fennel. In this review were summarized different publications presented in journals and books from electronic databases (Google Scholar websites, Science Direct and Research Gate), between 1961 and 2019. In total were reviewed 50 scientific studies, which furnish knowledge about the botany and phytochemistry of two varieties of *Foeniculum vulgare* ssp. *vulgare* Mill: var. *dulce* and var. *vulgare*. As a result of this study review, several botany and phytochemistry differences between sweet fennel and bitter fennel have been determined. It also showed that from all 50 scientific papers reviewed in this study, only 20% were reported between 1961-2000, in 2000-2010 the literature had a share of 32%, while in the last 9 years (2010-2019) were published 48% from the studies. In conclusion, this review highlights the major differences between the two fennel varieties, and as well the scientific interest on the botany and phytochemistry of *Foeniculum vulgare* Mill., which was internationally increased in the last decade.

Key words: *Foeniculum vulgare* Mill., sweet fennel, bitter fennel, phytochemistry, botany

MÎRZAN Bogdan¹, ROBU Teodor¹, MÎRZAN Oana², NAIE Margareta², BOSTAN Maria²

¹UASVM Iasi, Romania

²Agricultural Research and Development Station (A.R.D.S.) Secuieni, Romania

Cercetări privind influența genotipului și a epocii de semănat asupra producției de semințe la *Ricinus communis* L. (ricin) în condițiile pedoclimatice din Centrul Moldovei ❖ Research regarding the

influence of genotype and epoch of sowing on seeds yield at *Ricinus communis* L. (castor bean) in the pedoclimatic conditions from the Central of Moldova

The researches were organized in 2018-2019 at the Moldoveni Agricultural Society, Neamt County. In the agricultural year 2018, the genotypes experienced did not show a high adaptability to the pedoclimatic conditions of the area, obtaining yields below $1500 \text{ kg} \cdot \text{ha}^{-1}$. Compared to 2018, the yields obtained in 2019 were higher, this was due to the excess of precipitation registered in May of approximately 30 mm. The yields varied between $1297 \text{ kg} \cdot \text{ha}^{-1}$ (Teleorman variety) and $1548 \text{ kg} \cdot \text{ha}^{-1}$ (Cristian variety). During in the period under study, the highest yield increases (38 kg/ha , respectively $127 \text{ kg} \cdot \text{ha}^{-1}$), compared to the control (average experience) were obtained for the variants sown in the first and second epochs, which results that the castor being favorable for sowing until the second half of April.

Key words: genotype, castor, epoch of sowing

VELICHI Eugen

"Dunarea de Jos" University Galati, Romania

Influența unor tratamente cu diferite produse de uz fitosanitar (fungicide) asupra atacului unor ciuperci fitopatogene și asupra producției la grâu - soiul Pitar - în condițiile pedoclimatice ale Bărăganului de Est, în anul 2019 ♦ The influence of treatments with various phytosanitary products (fungicides) on the attack of some phytopathogenic fungi on wheat harvest - Pitar variety - in 2019 pedoclimatic conditions of the Eastern Baragan

This study aims at monitoring the dynamics of the occurrence and evolution of the attack of some pathogenic agents to Romanian wheat variety, Pitar. Among these, we mention: *Puccinia recondita* f. sp. tritici (sin. *Puccinia triticina*) which produces wheat's brown rust and *Septoria* sp. which produces wheat's brown leaf spotting (septoriosis). Also, the influence of applying these fungicides on the harvest, as compared to the untreated control variant, was monitored. One experiment with 7 variants (6 variants with phytosanitary treatment, plus one control variant not treated) was taken into consideration for this study, for which the following phytosanitary products for wheat were used, as follows: - FALCON PRO (prothioconazole 53 g/l+tebuconazole 148 g/l + spiroxamine 224 g/l); - MYSTIC 250 EC (tebuconazole 250 g/l) - CAPALO (fenpropimorph 200g/l, epoxiconazole 62.5 g/l, metraphenon 75g/l) The treatment variants were the following: - V1 - MYSTIC 250 EC $0.5 \text{ l} \cdot \text{ha}^{-1}$ treatment applied at spike's releasing (17.05.2019); - V2 - MYSTIC 250 EC $0.5 \text{ l} \cdot \text{ha}^{-1}$ treatment applied at straw's extension (27.04.2019) + 1 treatment applied at kernel's filling (8.06.2019). - V3 - FALCON PRO $0.6 \text{ l} \cdot \text{ha}^{-1}$ treatment applied at spike's releasing (17.05.2019). - V4 - FALCON PRO $0.6 \text{ l} \cdot \text{ha}^{-1}$ treatment applied at straw's extension (27.04.2019) + 1 treatment applied at kernel's filling (8.06.2019). - V5 - CAPALO $1.0 \text{ l} \cdot \text{ha}^{-1}$ treatment applied at spike's releasing (17.05.2019). - V6 - CAPALO $1.0 \text{ l} \cdot \text{ha}^{-1}$

treatment applied at straw's extension (27.04.2019) + 1 treatment applied at kernel's filling (8.06.2019). - V7 - Untreated control variant. The experiment was placed in Latin square; the 7 variants being placed in 7 repetitions. Among the pathogenic agents under monitoring, *Puccinia recondita* f.sp. *tritici* fungus producing the brown rust had produced the greatest attacks. The attack of the fungi from *Septoria* sp. Variety producing leaf's brown rust (septoriosis) and from *Blumeria* (*Erysiphe*) variety, producing wheat's mildew, was rare. The first two leaves placed under the spike had been analyzed for the above. These observations had led to the conclusion that for all 6 treatment variants, the degree of attack (D.A. %) of *Puccinia recondita* f.sp. *tritici* fungus was more reduced than at the untreated control variant. The harvests of the treated variants were as follows: (V1 – 6989 kg·ha⁻¹, V2 - 6688 kg·ha⁻¹, V3 - 6536 kg·ha⁻¹, V4 - 6828 kg·ha⁻¹, V5 - 6875 kg·ha⁻¹, V6 - 6582 kg/ha and V7 (control variant not treated) - 6301 kg·ha⁻¹kg·ha⁻¹.

Keywords: *Pyrenophora* spp., cyproconazole, latin square

TUDORACHE Valentin Teodor, TĂLMACIU Mihai, TĂLMACIU Nela, HEREA Monica

UASVM Iasi, Romania

Cercetări privind entomofauna coleopterelor din unele culturi agricole din partea de Nord a Portugaliei ❖ Rsearches regarding the entomofauna of coleopteras within some agricultural crops from the North part of Portugal

The purpose of this research was that to identify the useful entomofauna of coleopteras from the agricultural crops which have been taken into the study: olive trees and orange trees. The researches were carried out within the Quinta da Pinhao station, which belongs to the University of "Tras os Montes e Alto Douro". The biological material was sampled by the mean of D-Vacuum at 20th of June of 2017, from each 6 trees belonging to each crop, which have been aimlessly chosen. The D-Vacuum has worked one minute for each tree taken into the study. After carrying out the experiments, all the sampled insects were bringing into the Laboratory of Entomology in order to be counted and determined. From the Coleoptera order, species with the biggest number of samples were: - within the olive trees: *Chrysomelidae* family - 91 samples, *Coccinellidae* - 56 samples, *Aderidae* - 42 samples and *Scarabaeidae* - 38 samples. From the *Coccinellidae* family, species with the biggest number of samples were: *Coccinella septempunctata* (31) and *Hippodamia variegata* (16). - within the orange trees: *Chrysomelidae* family - 142 samples and *Coccinellidae* family - 54 samples. From the *Coccinellidae* family, species with the biggest number of samples was: *Coccinella septempunctata* (33).

Key words: D-Vacuum, *Chrysomelidae*, *Scarabaeidae*, *Coccinellidae*

TOADER George, CHIURCIU Viorica, MAIEREAN Nistor, FILIP Valentina, FLOAREA Cristian-Ionut, BURNICHI Floarea, PETRE Constantin, TOMA Mitel, TOADER Alexandru, MIREA Emilian, NECHITA Ana-Maria, FÎNARU Nelly-Lili, ENEA Cătălin-Ionuț, ILIE

Leonard

UASVM Bucharest, Romania

Rezultate privind utilizarea biopreparatelor bacteriene (fertilizatori biologici) în culturile agricole din cadrul Stațiunilor de Cercetare-Dezvoltare pentru Agricultură, România ❖ Results on the use of bacterial biopreparations (biological fertilizers) in agricultural crops in Research and Development Stations for Agriculture, Romania

The development and use of organic fertilization strategies in agricultural crops will lead to the support of processes such as the decomposition of insoluble elements in the soil structure, plant matter on the soil surface, which will lead to an increase in the number of soluble mineral elements in the soil structure, and, implicitly, towards a significant increase in plants and agricultural production. The application of chemical fertilizers in high doses has led to an increase in soil pH from a base to an acidic pH, which is why crop plants will have certain imbalances such as soil acidification, decreased agricultural production, increased resistance of pests in soil structure and soil and groundwater pollution. Within the research and development stations for agriculture in Romania, chemical fertilizers and biological fertilizers were tested in parallel at certain crop plants. Thus, it was proved that the lots fertilized with organic fertilizer had a much higher production than the lots fertilized chemically (production increases from 54% to 225%). Also, following the mapping of the lots (control-unfertilized lot, chemically fertilized lot, biologically fertilized lot) it was proved that the insoluble elements in the soil structure were conferred in soluble mineral elements, which led to the provision of the necessary nutrients that the plants need. to develop. Following the testing of the organic fertilizer Rom-Agrobiofertil NP in parallel with the complex chemical fertilizer 15:15:16 on the cabbage crop, it was proved that the production of the biologically fertilized lot showed an increase of 224.9% compared to the chemically fertilized lot (see section results). Another aspect is the increase of tomato production in the biologically fertilized lot. Following the comparison of the productions between the chemically fertilized lot and the biologically fertilized lot, it was proved that the production of the organic lot increased by about 80% compared to the chemically fertilized lot, 69.27% production per biological lot (compared to the chemical one) and 39.96% to the total number of fruits per plant. **Key words:** bacterial biopreparations, biological protection and fertilization, ecological fertilization technologies

**ȚÎȚEI Victor¹, ANDREOIU Andreea Cristina², BLAJ Adrian Vasile²,
MARUȘCA Teodor², COȘMAN Sergiu¹, COZARI Serghei¹**

¹"Alexandru Ciubotaru" National Botanical Garden (Institute) Chisinau, Moldova

²Research-Development Institute for Grasslands Brasov, Romania

Calitatea masei verzi și a silozului la specia *Phalaris arundinacea* L. în condițiile Moldovei ❖ The green mass and silage quality of reed canary grass, *Phalaris arundinacea* L. under the conditions of Moldova

Reed canary grass *Phalaris arundnacea* is a cool-season, long-lived with good frost and drought tolerance, high-yielding C3 grass species. The objective of this research was to evaluate the quality of green mass and prepared silage from reed canary grass, *Phalaris arundinacea*, cv. Premier grown under the conditions of the Republic of Moldova. In the third growing season, reed canary grass was characterized by high growth rate and regenerative capacity after being cut. Results revealed that harvested green mass first cut content 25.6% dry matter, but green mass second cut - 38.7% dry matter. The dry matter of the whole plant contained 109-139 g/kg CP, 74-98 g/kg ash, 368-411g/kg ADF, 616-685 g/kg NDF, 36-38 g/kg ADL, 330-375g/kg Cel and 248-274 g/kg HC. The nutritive value of natural fodder: 56.9-60.2 % digestible dry matter, 11.32-11.91 MJ/kg digestible energy, 9.29-9.78 MJ/kg metabolizable energy and 5.31-5.79 MJ/kg net energy for lactation. The prepared silages were characterized by agreeable colour with pleasant smell and pH 4.23, it contained 30.8- 43.9 g/kg DM lactic acid, 5.8-7.2 g/kg DM acetic acid, 900-902 g/kg organic matter, 127-129 g/kg CP, 411-427 g/kg ADF, 683-704 g/kg NDF, 27-28 g/kg ADL with nutritive value: 55.6-56.9 % dry matter digestibility, 11.09-11.32 MJ/kg digestible energy, 9.11-9.28 MJ/kg metabolizable energy and 5.07- 5.31 MJ/kg net energy for lactation. We found that the *Phalaris arundnacea* substrates for anaerobic digestion, have optimal C/N ratio, amount of lignin and hemicellulose. It has been established that the biomethane potential of the *Phalaris arundnacea* substrates varied from 335 to 362 l/kg ODM. Reed canary grass *Phalaris arundnacea* cv. Premier have good nutrient content, can be used as as natural fodder and silage for husbandry animals, also and feedstock for anaerobic digestion in biogas reactors and renewable energy production.

Key words: biochemical composition, biomethane potential, green mass, nutritive value, *Phalaris arundnacea*, silage

GEORGESCU Emil, CANĂ Lidia, RÂȘNOVEANU Luxita, MINCEA Carmen

NARDI Fundulea, Romania

Păduchele verde al piersicului (*Myzus persicae*) poate fi un dăunător problemă pentru cultura rapiței, în sud-estul României ❖ Green peach aphid (*Myzus persicae*) can be a serious pest problem for oilseed rape crop, in the South-East of Romania

In this paper, it has reported a high attack of the green peach aphid (*Myzus persicae*), in late autumn of the year 2018, at oilseed rape crop, in the south-east of Romania. This pest has a wide range of host plants, attacking more than 240 species from 64 different botanical families. The evolution of green peach aphids at oilseed rape crop, during autumn, was assessed in this paper. A field experiment was carried out at NARDI Fundulea, both, in 2017 and 2018. It has assessed both, untreated and treated seeds variants with systemic insecticides. Also, it has recorded percentage of parasitized aphids by *Aphidius* spp. and *Praon* spp. In the weather conditions from autumn of the year 2017, green peach aphids density at

oilseed rape crops was insignificant with a maximum of 2.25 aphids/leaf at untreated plants and 0.38 aphids/leaf at plants emerged from treated seeds. However, in 2018 it has registered a high density of this pest at oilseed rape crop with a maximum of 243.25 aphids/leaf at untreated plants and 23.38 aphids/leaf at plants emerged from treated seeds. In weather conditions of the year 2018, in the experimental field from NARDI Fundulea, highest population amount of green peach aphids at untreated oilseed rape plants it has recorded in late autumn, on 12 November. Possible explication for this is because of higher temperatures and drought recorded both in October and the first half of November. At the same time, in autumn of 2018, parasitized aphids percent was 5.15 % at untreated variant and between 4.74 and 5.00 % at treated variants. This situation occurred in autumn of 2018, in the south-east of Romania must be warming for the farmers for the following years. Increasing the temperature and drought can have an effect of increasing the attack of aphids at oilseed rape crops, in autumn.

Key words: oilseed rape, aphids, attack, autumn

DINCĂ Lucian, TIMIȘ-GÂNSAC Voichița

"Marin Dracea" National Institute for Research and Development

Pădurile din stepa din Câmpia de vest - o alternativă pentru agricultură? ❖ Forests from the West Plain Steppe - an alternative for agriculture?

The present paper has taken into account data from forest management plans realized for 13 national Forest Districts during 1995-2008 for all forests located in the West Plain. The following elements were analysed: the surface occupied by oak stands, the species that compose them, age, field slope, altitude, flora and forest type, soil and station type. The study has shown that forests from the 3d Subcategory (Forests with protection functions against harmful climate and industrial factors) occupy a total surface of 7059 ha in the West Plain. Amongst them, the first place is occupied by the 1-3A functional category (Forests situated in the steppe and at the limit between steppe and silvosteppe), covering 3911 ha. Pedunculate oak (*Quercus robur* L.) is the most widespread species in these forests, occupying a surface of 2770 ha (71% of the entire surface). Oak forests from the steppe and from the limit between steppe and silvosteppe cover approximately 1/2 of the total area occupied in the West Plain by forests with protection functions against harmful climate and industrial factors. The altitude for these stands is specific to plain areas, ranging between 90 and 167 meters. The fields from the West Plain are medium plane, while the soils on which they vegetate have an in-depth humidity excess (stagnic luvisol, stagnosol, luvisc stagnosol, mollic gleic arenosol). This aspect proves the fact that forests occupy surfaces that are better supplied with water in these areas characterized as dry. *Poa pratensis* is the most widespread type of flora from these stands.

Key words: stands, West Plain, altitude, structure, soil type

POSTER SESSION

KÖLLMANN Philipp

Justus Liebig University Gießen, Germany

**Eficacitatea unei tehnici de recoltare combinate inovatoare pentru controlul buruienilor în zona centrală a regiunii Hessen - Germania ❖
Effectiveness of an innovative combine harvesting technique for weed regulation in central Hessen/Germany**

With the beginning of intensification of agricultural systems in the 1950s a change in the biodiversity of the agricultural landscape can be detected. The biological diversity decreased in the context of a more intense way of farming which is characterized by the application of agro-chemical products like fertilizers and herbicides. Many segetal species react sensitive against the input of fertilizers and a higher nitrogen input. Middle Europe's segetal flora is a strongly threatened species group due to the massive changes in the farming methods (van Elsen et. al., 2011). The segetal flora plays an essential role in the food supply of insects which themselves contribute to the pollination of crops and fruit. Besides the depletion of biodiversity there is a stabilization of some few species that have adapted to intensive farming. There are some grasses like *Alopecurus myosuroides* that have already become resistant against herbicides. Regulation of these species is a challenge for farmers as conventional methods have seemed to become ineffective (Owen et al., 2015). Before the use of combine harvesters, the grain was cut and threshed in two separate steps. With this technique, weeds that have grown on the fields were removed with the sheds that were brought to a local threshing machine. The new innovative combine harvesting technique is based on the idea of collecting weed seeds as a method to regulate the weeds on the fields. The approach of the new technique is to collect weed seeds during the threshing process without releasing them on the fields again as it is the problem in a standard combine harvesting process. Thus, weeds are growing steady on the fields and farmers are dependent on the application of herbicides if they wish to have adequate crop yields. For the project a combine harvester was rebuild. A gadget to collect weed seeds was fixed on the harvester which is being tested since summer 2019. In the first harvesting period in summer 2019 it was found out that there is a high share of small and light weighted seeds of grasses in the material that was picked up. Bigger seeds were found rarely in the material that was picked up during the threshing process. This article will compare the results of the harvests of 2019 and 2020 and access the effectivity of the new harvesting technique concerning the collection of weed seeds.

Key words: combine harvesting, segetal species, weeds, weed seed collection, weed regulation

CLAPCO Steliana, PORT Angela, WANG Chao, DUCA Maria

"Dimitrie Cantemir" State University - Chisinau, Moldova

Studiul diversității lupoaiei provenite din diferite țări cultivatoare de floarea-soarelui în baza parametrilor morfologici ale semințelor ❖ The study of broomrape diversity in different sunflower cultivating countries based on morphological parameters of parasite seeds

The root holoparasite *Orobanche cumana* Wallr produces a very high number of extremely small seeds, which remain viable in the soil for decades and could be easily disseminated through the use of machinery or contaminated seeds. Due this fact and considering the global scale of sunflower seeds exchange, the control of parasite is extremely difficult. Currently broomrape is present in the majority of sunflower cultivation countries and spreads very quickly to new areas. In this context, it is of interest to analyze and highlight distinctive morphological features of *O. cumana* seeds collected from different European and Asian countries, such as the Republic of Moldova, Romania, Bulgaria, Ukraine, Serbia, Spain, Turkey and China. The morphometric analysis (seed length, width and length/width ratio) of broomrape samples did not show significant differences in their size. *O. cumana* seeds ranged between 0.316-0.393 mm x 0.148- 0.176 mm, with a L/W ratio of 2.022-2.596. A moderate positive correlation ($r=0,485$) between length and width of broomrape seeds has been revealed. The mean value of L/W ratio in all investigated populations (38) was around 2,3, being in agreement with the results obtained by other authors and showing that *O. cumana* has preferentially elongated shape of seeds comparative to other broomrape species. Comparing to other studies, the mean value of L/W ratio was higher than 2.0 (2.18) even in Chinese populations. The coefficients of variation indicated low values, especially in the case of seed length (6.73-19.56%), which suggests a moderate level of intrapopulation variability, all studied populations being relative homogenous. The analysis of Euclidean distance showed small distances (0.001-0.577) between broomrape populations, the most distant being those collected from Seville (Spain), Tulcea (Romania), Xin Jiang (China), ORSR11 (Serbia), Popeasca and Sarata Mereseni (Republic of Moldova) and Edirne, Kesar (Turkey) in different combinations.

Key words: broomrape, *Orobanche cumana*, populations, seed morphology, seed length, width and length/width ratio variability

JITĂREANU Carmenica Doina, SLABU Cristina, MARTA Alina Elena, COVAȘĂ Mihaela

UASVM Iasi, Romania

Efectul unor biostimulatori asupra procesului de fotosinteză la salată ❖ The effect of biostimulants on the process of photosynthesis in lettuce

In the last ten years, agriculture has been oriented towards the use of organic substances applied in the fight against diseases and pests or as fertilizers intended to increase the productive potential. From this point of view, a special emphasis is placed on the use of biostimulants, they contain the whole range of growth regulators necessary for plants, stimulating the metabolism of plants, giving them resistance to external factors. Stimulates photosynthesis and absorption of

nutrients, delays tissue aging and stimulates the transport of nutrients and reserve substances to the young parts of the plant. This study followed the effect of two organic biostimulants on the photosynthesis process in two salad varieties grown in the greenhouse. At the same time, the aim was to establish the most effective way to apply biostimulants to increase production. The application of growth regulators was done every ten days by foliar spraying and root application, the first application being made at the appearance of the first leaves, and the last application was made ten days before harvest. The biostimulants used in this study were Wuxal Ascofol with a high content of algae extract and Blackjak based on humic acids. The photosynthesis process was evaluated by determining the total chlorophyll content and by evaluating the content of photosynthetic pigments in the leaves. The study showed that the applied organic treatments stimulated the photosynthesis process in both varieties of salad, which was correlated with an increase in head of salad. The chlorophyll content of 431 nm and chlorophyll b 453 nm, components of the absorption center that capture light energy and transfer it to the reaction center recorded the highest values in the variant treated with Wuxal Ascofol, which shows an intense transport of assimilated to foliar system. It was also noted that the foliar application of biostimulants to lettuce gives much better results than the application at the root level.

Key words: lettuce, biostimulants, photosynthesis

TROTUȘ Elena, PINTILIE Paula-Lucelia, AMARGHIOALEI Roxana-Georgiana

Agricultural Research and Development Station (A.R.D.S.) Secuieni, Romania

Date cu privire la monitorizarea speciei *Diabrotica virgifera virgifera* Le Conte, în culturile agricole din zona Centrală a Moldovei ❖ Data on the monitoring of *Diabrotica virgifera virgifera* Le Conte, in agricultural crops in the Central area of Moldova

In addition to the 25 species of harmful insects of economic importance for maize crops identified in Romania, of which, the beetle of maize leaves (*Tanymecus dilaticollis*) and wireworms (*Agriotes* sp.) are very dangerous soil pests, it is added species *Diabrotica virgifera virgifera* Le Conte. The species was identified in Europe in 1992, and in 1996 it spread to Romania. The area of spread of the pest was initially restricted in the south - west and west, in the counties of Arad, Timiș, Caraș - Severin, Mehedinți, Dolj, Hunedoara, then gradually spread to all areas of maize cultivation. In the eastern part of the country, respectively in the area of influence of the A.R.D.S. Secuieni (Neamț, Bacău and North Vrancea counties area) the insect was reported in 2015, the intensity of the flight, the abundance and frequency of the attack increased from year to year, which imposed as a necessity the monitoring of the species and the way of attack. The species *Diabrotica virgifera virgifera* Le Conte causes damage to maize crops both in the larval stage and in the adult stage. Oligophagous larvae feed on the roots of several species of grasses, except sorghum, which they bear fruit, cut them, strongly attacked plants have the stem slanted in the form of a swan's neck, wither, dry prematurely,

production losses being 10 - 13%, sometimes higher up to 55%. Adults are polyphagous, but they especially feed on the leaves, silk and corn pollen, but also on the grains at the top of the cobs. The attack reported on the corn leaves is similar to that of the species *Lema melanopa*. Observations and determinations on the appearance and flight of adults were made using yellow glue traps, which were installed in maize crops from the second half of June. The first adults were registered in the first decade of July, the flight continued without interruption until the end of September. During this period July - September, the adults made a single flight curve, the maximum flight peak was recorded in the second decade of August and totaled an average of 470 specimens / trap / decade. Knowing the abundance of *Diabrotica virgifera virgifera* Le Conte in agricultural crops in Central Moldova, it is necessary to approach research on knowledge of bioecology, factors influencing the emergence, evolution and attack, measures to prevent and control the pest.

Key words: corn, pests, attack, crops, flight curve

**COVAȘĂ Mihaela, SLABU Cristina, MARTA Alina Elena,
JITĂREANU Carmenica Doina**

UASVM Iasi, Romania

Acțiunea unor biostimulatori asupra procesului de fotosinteză la floarea-soarelui ❖ The action of growth regulators on the process of photosynthesis in sunflower

Biostimulants are substances that ensure the metabolic balance of plants, improve vitality and at the same time provide a high resistance against the attack of phytopathogens and pests, as well as an increased tolerance to abiotic stressors, so these substances can be used successfully in agricultural crops. One of the main physiological processes that are directly influenced by the action of biostimulants and which has a decisive factor in the quantity and quality of the crop is photosynthesis. That is why our study aimed to establish the main ways in which growth regulators intensify the process of photosynthesis. We followed the effect of some biostimulants on the intensity of the photosynthesis process in the sunflower crop, a crop that in recent years has remained in the top of UE countries with the largest cultivated land areas but also with high yields. In 2016, according to the National Institute of Statistics, Romania ranked first in the area cultivated with sunflower and in the production obtained. The experience was organized at the Ezareni farm, within the Teaching Station of the University of Agricultural Sciences and Veterinary Medicine Iasi, in the spring of 2019 and was placed according to the method of randomized blocks with three repetitions. The study was performed on the NK NEOMA sunflower hybrid, and the treatments were done with the biostimulants Atonik and Terra - Sorb in a concentration of 0.3%. Two treatments were made in two different phenophases: at the formation of the floral bottom and before flowering. The evaluation of the intensity of the photosynthesis process was performed by: determining the total chlorophyll content (CCI) and by determining the content of photosynthetic pigments in the leaves, maintaining an

interval of 7 days from the application of biostimulants. The results showed an intensification of the photosynthesis process in the flowering phenophase I for the variants treated with biostimulators. The group of plants treated with Terra Sorb is noted with the highest value, which coincides with the higher number of leaves/per plant recorded in the second phenophase studied. In the process of photosynthesis, the primary role for capturing light energy and transformation into potential chemical energy belongs to chlorophyll a (especially chlorophyll a 662-663 nm), which is why the spectrophotometric method analyzed the content of assimilative pigments so important in stimulating the process of photosynthesis and subsequently in the intensification of production to sunflower culture. The obtained results demonstrate higher values of the chlorophyll a content for the variants treated with biostimulants, in both phenophases, the control group registering lower values.

Key words: sunflower, chlorophyll, growth regulators

SLABU Cristina, JIȚĂREANU Carmenica Doina, MARTA Alina Elena, COVAȘĂ Mihaela

UASVM Iași, Romania

Efecte alelopatice ale extractului apos de *Galinsoga parviflora* Car. asupra germinăției semințelor și creșterii plantulelor de *Raphanus sativus* L. varietățile *sativus* și *niger* ❖ Allelopathic effects of *Galinsoga parviflora* Car. aqueous extract on seed germination and seedling growth of *Raphanus sativus* L. var. *sativus* and var. *niger*

In agricultural ecosystems, weeds reduce the crop production through direct competition for environmental factors but also through allelopathic effects. Currently is unanimously accepted that the communication between plants is done at chemical way. This biochemical communication between plants was defined by Molisch at allelopathy. Allelopathy is a common biological phenomenon by which the plants produce biochemicals that influence the growth, survival, development, and reproduction of other plants. At the horticultural crops level, the plant communities are not immune from allelopathic interferences. *Galinsoga patviflora* - a common weed, often found on the cultivated field, is characterized several studiey with allelopathic properties. Plant debris introduced into the soil by destroying weeds may contain compounds that influence cultivated plants. This paper presents some aspects regarding the allelopathic effect of *Galinsoga parviflora* Car. aqueous extract, on seed germination and seedling growth of *Raphanus sativus* subsp. *sativus*. and *Raphanus sativus* subsp. *niger*. We have observed that the allelopathic effect was expressed as a change in seed germination capacity, a reduction in seedling growth and the effects on the biosynthesis of chlorophyll pigments, and dry matter. This physiological reactions of the plants exposed to aqueous extract treatments, that could contribute to the reduction of crop production are strongly dependent on the investigated cultivars.

Key words: allelopathy, *Galinsoga parviflora*, *Raphanus sativus*, seed germination, seedling growth

**LEONTE Alexandra, ISTICIOAIA Simona-Florina, POPA Diana,
MÎRZAN Oana**

Agricultural Research and Development Station (A.R.D.S.) Secuieni, Romania

**Comportarea unor soiuri de soia în condițiile pedoclimatice din
Centrul Moldovei ❖ The behavior of some soybean varieties in the
pedoclimatic conditions from the Center of Moldovia**

Soybeans is an important source of protein because the amount of protein in a hectare of soybeans is higher than in any other crop. It has a wide range of uses, and it can be used in many areas: for food production, for food and as fuel. Considering the growing interest, in recent years, for this crop, at the ARDS Secuieni a number of ten soybean varieties have been experimented, Carla TD, Larisa, Caro TD, Ilinca TD, Bia TD, Ada TD, Teo TD, Miruna TD, Felicia TD, Onix, creations of the Agricultural Research and Development Station Turda, in order to establish their adaptability to the pedoclimatic conditions of the area. On average, the factors studied greatly influenced soybean production, which varied widely, from 2687 kg·ha⁻¹, to Felicia TD variety to 3409 kg·ha⁻¹ to Larisa variety. Regarding the correlation between soybean production and the protein production obtained, it is observed that there is a direct correlation, the correlation coefficients calculated being statistically assured and interpreted as very significant.

Key words: soybean, adaptability, production, agricultural years

**MÎRZAN Oana, NAIE Margareta, LEONTE Alexandra, BOSTAN Maria,
MÎRZAN Bogdan**

Agricultural Research and Development Station (A.R.D.S.) Secuieni, Romania

**Cercetări privind influența unor factori tehnologici asupra biologiei
speciei și producției de semințe la *Carthamus tinctorius* L. (șofrănel)
la S.C.D.A. Secuieni ❖ Researches regarding the influence of the
technological factors on the biology of the species and the seed yields
of *Carthamus tinctorius* L. in A.R.D.S. Secuieni**

The paper aims to highlight the influence of technological factors on the biology of the species and seed production at *Carthamus tinctorius* L. (safflower). The research were carried out in 2019, in the experimental field of A.R.D.S. Secuieni. Due to the higher temperatures from the third epoch and the precipitations recorded in the sowing to emergence period, the plants had a faster evolution. It was necessary 117 days from sowing to harvesting the seeds, the sum of the accumulated temperatures was 2241.9 °C and the precipitation amounted to 230.7 mm. Under the conditions of A.R.D.S. Secuieni, at the first sowing epoch, there was an increase in production of 156 kg·ha⁻¹ compared to the control of the experience. The interaction of the studied factors influenced the seed production, obtaining the highest seed production at the sown variant at 70 cm between rows and 25 cm between plants per row (1688 kg·ha⁻¹).

Key words: seed, safflower, epoch of sowing

**URSACHE Paula-Lucelia¹, TĂLMACIU Mihai¹, TROTUȘ Elena²,
AMARGHIOALEI Roxana-Georgiana², ISTICIOAIA Simona-Florina²,
LEONTE Alexandra²**

¹UASVM Iasi, Romania

²Agricultural Research and Development Station (A.R.D.S.) Secuieni, Romania

Influența hibridului de porumb asupra nivelului atacului produs de larvele speciei *Ostrinia nubilalis* Hbn. în condițiile din centrul Moldovei
❖ The corn hybrid influence on the *Ostrinia nubilalis* Hbn. larvae attack level under the condition of Central of Moldova

From the first report of the species *Ostrinia nubilalis* Hbn. in Romania, in 1898, the insect spread and is currently present in all corn crops in our country. The production losses that the insect produces vary from one year to another, from one field to another, one of the factors influencing the reduction of the attack is the cultivated maize hybrid. This paper presents the preliminary results obtained in 2019, where was studied the influence of the hybrid precocity group and variety on the attack level produced by the european corn borers larvae in the conditions of the Center of Moldova. The studied maize hybrids show different values of the attack produced by the *Ostrinia nubilalis* Hbn. larvae. Depending on the maturity group, the genotypes that recorded high attack values are those from FAO groups 400 - 430 (Kerala and Olt), followed by semi-early hybrids in FAO groups 370-380, and the lowest attack was recorded by the hybrid Vibrion classified as FAO maturity group 290. Of the three maize varieties studied, the sweet hybrid was the most affected by the european corn borer larvae attack followed by the dentate ones from the semi-early maturity groups and the flint variety (Vibrion) was not affected due to the short period of vegetation.

Key words: hybrid, maturity group, attack, larvae, european corn borer

**MÎRZAN Bogdan¹, ROBU Teodor¹, MÎRZAN Oana², NAIE Margareta²,
BOSTAN Maria²**

¹UASVM Iasi, Romania

²Agricultural Research and Development Station (A.R.D.S.) Secuieni, Romania

Cercetări privind influența interacțiunii dintre genotip x epocă de semănat x distanța între rânduri asupra producției de seminte la *Ricinus communis* L. (ricin)
❖ Research regarding the influence of genotype x epoch of sowing x distance between rows on seeds yield at *Ricinus communis* L. (castor bean)

The researches were organized in 2018-2019 at the Moldoveni Agricultural Society, Neamt County. Analyzing the influence of the distance between rows at castor, it results that at greater distances yield deficits are obtained, so when the plant nutrition area is increased, the branching is stronger and the yield obtained from the main raceme decreases, increasing instead the production of secondary racemes. The results obtained on average over the two years of experimentation show us that the highest production was obtained for the variant sown at 70 cm between rows (1460 kg·ha⁻¹), which indicates that castor responds favorably at this distance. The average productions obtained in the analyzed period were directly influenced by the experienced technological factors. These varied in limits between

1036 kg·ha⁻¹ (Rivlas x the fourth epoch x 100 cm between rows) to 1650 kg·ha⁻¹ (Christian x the second epoch x 70 cm between rows).

Key words: yield, castor, technological factors

ISTICIOAIA Simona - Florina, LEONTE Alexandra, POPA Diana, PINTILIE Paula, MATEI Gheorghe, VLĂDUȚ Valentin, VOICEA Iulian

Agricultural Research and Development Station (A.R.D.S.) Secuieni, Romania

Rezultate obținute privind optimizarea tehnologiei de cultivare la sorgul pentru boabe în condițiile pedoclimatice din centrul Moldovei

❖ Obtained results regarding the optimization of grain sorghum technology in pedoclimatic conditions from central Moldova

In recent decades in Romania and in many other regions of the world, there is a high frequency of drought years, to three years out of every five. This climate negatively affects the productivity of agricultural crops, and agricultural research must find solutions to diversify the assortment of crops that in tougher environmental conditions guarantee the stability and profitability of agriculture. One of the safest solutions is the cultivation of sorghum, whether for grain or biomass, which due to good drought resistance, the ability to withstand high temperatures and capitalize on poorly fertile land is superior by the yields of all crops and especially, cereals and fodder plants. In the pedoclimatic conditions from the Center of Moldova, starting with 2018 year, were initiated some researches regarding the optimization of the cultivation technology for grain sorghum, in order to create a technology in relation to the new climatic conditions and in relation to the protection of the environment. The results obtained on average over two agricultural years, 2018 and 2019, indicated a very large variation of grain production depending on the sowing density provided and on the applied mineral fertilizers, this being between 4074 kg/ha and 10234 kg/ha. The best results were obtained in the variants sown with 30 b.g./mp and fertilized with N150P80 with and without the application of the biostimulator Aminosol. From the point of view of economic efficiency, however, these variants are not recommended, the most profitable being the fertilized variant with N75P80. This work was supported by a grant of the Romanian Ministry of Research and Innovation CCDI - UEFISCDI, "Complex system of integral capitalization of agricultural species with energy and food potential", project number PN-III-P1-1.2-PCCDI-2017-0566, Contract no. 9PCCDI/2018, within PNCI III.

Key words: grain quality, economic efficiency, mineral fertilization, production, sorghum

CHISNICEAN Lilia, CHISNICEAN Vasile

Institute of Genetics, Physiology and Plant Protection - Chisinau, Moldova

Aplicarea elementelor de tehnologie organică la cultivarea speciilor aromatice și medicinale ❖ Application of organic technological elements to the cultivation of spice-aromatic and medicinal species

The pressing problems of modern society are the massive pollution of the environment and the obtained products. The use of organic technological elements,

in the cultivation and processing of spice-aromatic and medicinal plants, is becoming extremely current. The replacement of some processes and mechanisms in the classical cultivation technology, by the organic ones, allowed us to obtain - structural improvement of the soil, maintenance and amelioration of the living soil habitat, vigor and vivacity of the plans, increased quality of obtained - unpolluted raw material. For the extensive cleaning of weeds and the improvement of the soil structure, the cultivation of plants for green fodder or a sidereal crop. In the crop rotation, was introduced *Sinapis alba*, which attests to the best results, the dense crops of the species *Trigonella caerulea*, *Trigonella foenum - graecum*. Superficial tillage with light equipment - as the chisel, without turning the arable layer, allowed its protection and even restructuring. The qualitative preparation of the soil, immediately before sowing, was done with harrow-type harrows, which destroyed the sprouted weeds and harrowed them, which allowed homogeneous sowing. During the vegetation, as much as the size of the plants allows - the harrowing with the arched toothed harrows that produced minimal damage but reduced the number of weeds by about 60-90%. Weeding between rows during the growing season was carried out buy a weeder. Mulching prevented the weeding, protected the soil and reduced the evaporation of water from it. As mulching material, they used cereal straw, plant remains of cultivated species, degradable paper, etc. Respecting of the assortment and succession in crop rotation of the spice-aromatic and medicinal species limited the spread of diseases, pests, reducing the seed reserves of weeds in the soil. Combating diseases caused by fungi was performed with Trichodermin, copper sulfate, Recol, infections with Rizoplan, Paurin. Aphids, mites and whitefly mosquitoes were controlled with the organic insecticide Pelecol, mining moths, thrips, wasp with a saw, caught in sticky traps, all being developed in the IGFPF for organic farming. Extracts, infusions, macerate from the species *Ecquisetum arvense*, *Artemisia* ssp., *Calendula officinalis*, *Pyretrum cinerarefolium*, *Koellia virginiana*, *Echinacea purpurea*. medicinal and aromatic have been used as remedies for preventing and combating diseases and pests. Fertilization was done with natural, organic products such as solid biohumus, liquid biostim that induced the accumulation of humus, regeneration of soil structure.

Key words: organic technology, processes, soil structure, weed control, mulching

BUCIUMEANU Elena-Cocuța, VIZITIU Diana Elena, DINCĂ Lucian

National Research-Development Institute for Biotechnologies in Horticulture - Stefanesti-Arges, Romania

Stabilirea celor mai valoroase soiuri de viță-de-vie pentru vin în Regiunea viticolă Terasale Dunării prin utilizarea procesului de ierarhizare analitică ❖ The most valuable grapevine varieties for wine established by analytical hierarchical process for a sustainable viticulture in Danube Terraces viticultural region

In order to promote a durable viticulture, an analytical hierarchical process (AHP) have been done to identify the most valuable grapevine varieties for wine in the Danube Terraces Viticultural Region. The grapevine varieties taken into the study are dedicated to white wine (Crâmpoșie, Riesling of Rhin, Fetească albă), red and

rosé wine (Negru of Drăgășani, Pinot noir, Cabernet franc, Merlot, Sangioveze). The AHP exercise was based on pairwise comparisons of 11 subjective criteria (including knowledge for recognition, market potential, “celebrity” of the product on the market, biotic and abiotic threats), and expert’s opinion. According to the results, the grapevine varieties with the highest potential for this region were selected as being Fetească albă, Merlot and Pinot Noir, also zoned for this wine region. Although the wine production of the area consists mostly of table wines, among which the dominant ones are those for white wines, two varieties for red wines and one for white wine were selected. The analyses were obtained by using the Expert Choice Desktop software (v. 11.5.1683). Taken into consideration the pedoclimatic characteristics of the region and the climatic changes situation, the behaviour of the three ranked grapevine varieties to different stress factors have been discussed. In the Danube Terraces conditions, the drought sensitivity of some grapevine varieties requires the reduction of water stress by irrigation. In areas with heavily eroded land on the slopes or fronts of terraces, it is recommended to use some rootstocks (Kobber 5BB, 41-B, SO4-4) to avoid the appearance of ferro-calcium chlorosis produced by the excessive presence of carbonates.

Key words: AHP, pairwise comparisons, durable viticulture, cultivars, Region VII

TĂLMACIU Nela, TĂLMACIU Mihai, HEREA Monica

UASVM Iasi, Romania

Observații privind structura și dinamica entomofaunei epigee existente în plantațiile de măr ❖ Observations regarding the structure and dynamics of the existing epigeus entomofauna in the apple fruit tree plantations

Observations on epigeus entomofauna were made during 2019 in a apple fruit tree plantation owned by SC Loturi Service SRL, Delesti, Vaslui County. The harvesting of the biological material was done with soil traps type Barber and with the beating method, from May to August inclusive. The collected material was cleaned from plant debris and then prepared for identification at order of insects, and in the coleoptera species these were determined to species level. The analysis of the collected material shows that the specimens collected belong to the *Hexapoda* class. Most of the specimens collected belong to the *Insecta* class. The most common species were: *Dermestes lanarius*, *Anysodactilus binotatus*, *Harpalus distinguendus*, *Cantharis fusca*, *Tachyusa coarctata*, *Otiorhynchus pinastris*, *Amara aenea* and *Microlestes minutulus*.

Key words: epigeous, apple orchards, dynamics

ȘUȘNIA (TONE) Irina, OPREA Adrian, SAMUIL Costel, HUȚANU Mariana, SÎRBU Culiță

UASVM Iasi, Romania

Răspândirea actuală a unor neofite invazive în lunca Siretului inferior ❖ The current spread of some invasive neophytes along the lower course of the Siret River

In this paper, we present new data on eight species of neophytes of North American origin (i.e., *Bidens frondosa*, *Euphorbia glyptosperma*, *Fraxinus pennsylvanica*, *Lepidium densiflorum*, *Oenothera depressa*, *O. suaveolens*, *Oxalis dillenii*, and *Parthenocissus inserta*), whose spread in the lower course of the Siret river proved to be much wider than was previously known in the literature. All of these species are invasive in natural and anthropogenic habitats, on both banks of the river. Two of them were introduced deliberately in Romania, as ornamental plants (*Fraxinus pennsylvanica* and *Parthenocissus inserta*), while the other 6 species were introduced accidentally. *Euphorbia glyptosperma* and *Oenothera suaveolens* are reported here for the first time in the historical province of Muntenia, and other species are floristic novelties for counties of Vrancea (*Bidens frondosa*, *Fraxinus pennsylvanica*, *Oenothera depressa*) and Brăila (*Fraxinus pennsylvanica*, *Lepidium densiflorum* and *Oxalis dillenii*). In addition to current spread of these species along the lower course of the Siret River, the paper provides data on the types of habitats invaded by each of them.

Key words: alien flora, Romania, EUNIS habitat types

TĂLMACIU Mihai, HEREA Monica, TĂLMACIU Nela

UASVM Iasi, Romania

Observații privind speciile de carabide existente în livezile de măr ❖ Observations on the existing *Carabidae* species in the apple orchards

In this paper new contributions are made to the knowledge of the species of carabids in a fruit tree apple of Delesti in the Vaslui country. The material was collected from May to September throughout the research period, using Barber traps. From the biological material collected, all species collected have been listed and determined and only the species belonging to the Carabidae family have been selected afterwards. In the period of the observations were collected throughout 1573 specimens of harmful and useful insects, so 795 were collected in 2018 for 11 species, and 778 were collected in 2019 for 33 species. Analysis of the collected material was found the most frequency species was: *Carabus coriaceus* L., *Pseudophonus rufipes* Mull., *Opatrum sabulosum* L., *Phyllotreta vittula* F., *Phyllotreta nemorum* L., *Formicomus pedestri* Anysodactylus binotatus, *Harpalus distinguendus*, *Harpalus calceatus*, *Harpalus tenebrosus*, *Harpalus griseus*, *Amara crenata*, *Harpalus tardus*, *Metabletus truncatulus*, *Amara aenea* și *Harpalus pubescens*.

Key words: carabids species, Barber traps, apple

GAVRILĂ Cristian-Sorin¹, SILISTRU Doina¹, NAZARE Adrian-Ilie², STAVARACHE Mihai², VÎNTU Vasile², SAMUIL Costel²

¹Meadows Research and Development Station, Vaslui, Romania

²UASVM Iasi, Romania

Influența fertilizării și a distanței dintre rânduri asupra producției de semințe la sparțetă (*Onobrychis viciifolia* Scop.), în primul an de

vegetație ❖ The influence of fertilization and distance between rows on seed production of (*Onobrychis viciifolia* Scop.), in the first year of vegetation

The research conducted during the period of March to October 2019, at the Meadows Research and Development Station, Vaslui (46°40'-36°10' north latitude and 27°44'-20°40' east longitude) followed the influence of fertilization and the distance between rows on the on seed production (kg·ha⁻¹), 1000 grains mass (g) and germination (%), at sainfoin (*Onobrychis viciifolia* Scop.) seeds culture, in the first year of vegetation. The organized experience was bifactorial, 3x5 type, placed according to the method of subdivided plots, with the plot harvestable area of 13.5 m² (1.5 m x 9 m), in three replications, and the factors studied were: A - the distance between rows with three graduations (a₁ - 25 cm, a₂ - 37.5 cm and a₃ - 50 cm) and B - fertilization with five graduations (b₁ - unfertilized, b₂ - N₅₀P₅₀, b₃ - N₅₀P₅₀K₅₀, b₄ - N₁₀₀P₁₀₀K₁₀₀ and b₅ - cow manure 20 Mg·ha⁻¹). Following the study, it was found that by applying mineral or organic fertilizers higher quantities of seeds were obtained, with higher values of 1000 grains mass and germination, and by sowing at smaller distances between rows smaller quantities of seeds were obtained with higher values of 1000 grains mass and germination.

Key words: 1000 grains mass, seed germination, correlation

HEREA Monica, TĂLMACIU Mihai, TĂLMACIU Nela

UASVM Iasi, Romania

Cercetări privind biodiversitatea speciilor necesare și utilizate din unele culturi agricole și horticulturale în 2018 ❖ Research on the biodiversity of harmful and useful species from some agricultural and horticultural crops in 2018

Observations were made during the research period of the year 2018 in the apple tree plantation, and in the cabbage crop and maize crop belonging to Vasile Adamachi and Ezareni farm, from Iasi county. The aim of the paper was to make a comparison regarding the entomofauna of the three very different cultures as technology and agroecosystem conditions. The collection of the material was carried out using the soil traps type Barber method from June to September inclusive. The collected material was cleaned of the vegetable debris was then prepared for identification up to the level of the spece only for coccinamide. From the analysis of the collected material it follows that the specimens of coleopters species belong to the: *Coccinella septempunctata*, *Adalia bipunctata*, *Propylaea quatordecimpunctata*, *Hippodamia variegata*, *Harmonia axyridis*, *Nephus quadrimaculatus*, *Carabidae*, *Scarabaeidae*, *Elateridae*. In terms of the abundance of entomofauna, on the crops, it is found that most specimens were collected and determined from the cabbage crops (649), from the apple orchard a number of 362 specimens. and 540 specimens in the maize crop from Ezareni.

Key words: entomofauna, horticultural crops, abundance, dynamics

GAFENCU Andrei-Mihai, FLOREA Andreea-Mihaela, ULEA Eugen

UASVM Iasi, Romania

Influența caracteristicilor agrometeorologice ale anului agricol 2019-2020 asupra culturii de grâu în zona de Nord-Est a Moldovei ❖ The influence of agrometeorological characteristics of the agricultural year 2019-2020 on wheat crop in the North-East part of Moldova

The study based on the aforementioned theme puts to distinguish specifics agrometeorological characteristics of the agricultural year 2019-2020 in the North-East part of Moldova, and its influence on growth and yield in winter wheat crop. It's presented the average values of precipitations and air temperature for the last decade and the values of precipitations and air temperature recorded between September 2019 and July 2020 and its influence in winter wheat crop. The climatic conditions encountered during the agricultural year 2019-2020 and, especially in the first half of 2020 made this year a very special one, being characterized by the presence of a severe drought, with strong negative influences on growth of cultivated plants and especially of winter wheat.

Key words: agricultural year 2019-2020, wheat, yield, precipitation, temperature

CHIRILĂ Constantin

UASVM Iași, Romania

Aspecte privind comanda electrică a injectiei de motorină ❖ Aspects regarding the electric control of diesel fuel injection

The paper presents the preliminary tests for a new method of controlling the injection of diesel fuel at the injector of a compression ignition engine. The purpose of the paper is to verify the possibility of obtaining certain quantities of fuel, sprayed by injector by this method. It was also verified the possibility of changing the value of the amount of diesel fuel sprayed by injector depending on certain parameters. Unlike conventional injection systems, in this case the injector receives fuel from an electrically operated piston pump element via an electromagnet. The commissioning of the electromagnet is controlled by an electrical circuit equipped with a battery of capacitors. The battery of capacitors is used to store electricity and is return for it to the actuation of the electromagnet. In this way the actuation time of the piston pump element is very short. The timing of the injector opening can also be easily of changed. The proposed model of injection has the injector mounted next to the pump element which makes it look from this point of view with the pump-injector injection system. At the pump-injector system, the functioning at pump element with piston is controlled by a cam. At the proposed model the pump element is supplied at a continuous pressure at a well-established value close to the injector opening pressure. The tests presented in the paper are performed using a prototype, which was tested only on a stand designed by the author and not on a running engine. The stand is equipped with a manually operated high pressure pump used for the testing operation of the classic injectors. At this stage of the preliminary tests it was looked at whether the proposed method allows the injection of fuel through the injector. It was also looked at whether there was a possibility of changing the dose of fuel injected. It was followed which of the constructive and functional factors influence the change of the injected dose.

Key words: diesel fuel injection

TUDORACHE Valentin Teodor, TĂLMACIU Mihai, HEREA Monica

UASVM Iasi, Romania

Observații privind entomofauna coleopterelor din unele culturi agricole din partea de Nord-Est a Portugaliei ❖ Observations regarding the entomofauna of coleopteras within some agricultural crops from the North-East part of Portugal

The aim of this research was that to identify the entomofauna of *Carabidae* existing within the agricultural crop taken into the study: vineyard grove by the mean of soil traps. Each 5 traps were mounted inside 3 subplots, namely: leguminosae+graminias, leguminosae and natural. The area of work was about 1.30 ha, each subplot having a surface of 4.000 m². The researches were carried out within Quinta da Granja farm which is located very close to Alijo city, at two dates: May 18th and May 22nd of 2017. To prevent the maceration of insects, a solution consisting of water and formalin was added inside each trap. After carrying out the experiments within the field, the insects were brought in the Laboratory of Entomology in order to be counted and identified. From the *Coleoptera* order, species with the biggest number of samples were: - within the leguminosae+graminias subplot: *Carabidae* family (92), *Scarabaeidae* (45), *Staphylinidae* (25) and *Dermestidae* (12). From the *Carabidae* family, species with the biggest number of samples were: *Harpalus tardus*-33 and *Carabus violaceus*-12 (for the date of May 18th); *Carabus violaceus*-24 (for May 22nd); - within the leguminosae subplot: *Carabidae* (154), *Staphylinidae* (101) and *Scarabaeidae* (71) and *Cerambycidae* (32) and *Chrysomelidae* (27) and *Dermestidae* (19). From the *Carabidae* family, species with the biggest number of samples were: *Pterostichus vernalis*-63 and *Poecilus versicolor*-32 (for May 18th); *Pterostichus cupreus*-26 (for May 22nd); - within the natural subplot: *Carabidae* (128), *Chrysomelidae* (72) and *Scarabaeidae* (54) and *Dermestidae* (22). From the *Carabidae* family, species with the biggest number of samples were: *Brachinus crepitans*-24 (for May 18th); *Anisodactylus binotatus* - 48 (for May 22nd).

Key words: soil traps, *Carabidae*, *Scarabaeidae*, *Dermestidae*

ANTON Florinel Gabriel¹, RÎȘNOVEANU Luxita²

¹UASVM Bucharest, Romania

²Dunarea de Jos² University Galati, Romania

Genotipuri de floarea-soarelui de la INCDA Fundulea în câmpuri infestate cu lupoai în zona Brailei, în anul 2019 ❖ Sunflower genotypes from NARDI Fundulea in field infestation with broomrape in Braila area, in year 2019

In south-east of Romania is present the most dangerous races of parasite *Orobancha cumana* and because of that, who want to cultivated sunflower hybrids, has low seed yield do to broomrape attack. In year 2019, in Braila area, in sunflower fields natural infested with the new races of broomrape from Romania, we tested many sunflower genotypes for resistance/tolerance to this parasite. We want to

identifying sunflower genotypes who are resistant/tolerant to broomrape present in this area.

Key words: broomrape, sunflower, genotypes, infestation

PRODAN Tudorița¹, JOIȚA PĂCUREANU Maria² , RÎȘNOVEANU Luxița^{3,4}, DAN Mihaela² , ANTON Gabriel², SAVA Elisabeta⁵, BRAN Alexandru⁵, ULEA Eugen¹

¹UASVM Iasi, Romania

²NARDI Fundulea, Romania

³ARDS Braila, Romania

⁴"Dunarea de Jos" University Galati, Romania

⁵The State Institute for Variety Testing and Registration, Bucharest, Romania

Controlul lupoaiei (*Orobanche cumana* Wallr.), prin dezvoltarea genotipurilor de floarea-soarelui rezistente genetic ❖ Broomrape (*Orobanche cumana* Wallr.) control, by developing genetic resistant genotypes in sunflower

Sunflower broomrape (*Orobanche cumana* Wallr.) is a parasitic plant which has a significant negative impact on seed yield. The parasite is spread in large areas of Europe, Asia and it has identified recently, in North Africa. Breeding for resistance is regarded as the most effective, feasible and environmentally friendly solution to control sunflower broomrape. However, breeding for resistance is challenging as new races of the parasite have evolved. The use of resistant hybrids of monogenic resistance type, is followed by the appearance of new more virulent races that overcome the existing resistance genes. So, it is necessary to develop sunflower hybrids which can accumulate qualitative and quantitative resistance in a single one, in order to have a durable resistance. Among this, by developing Clearfield Production System in sunflower it could have an important control strategy and complemented the genetic resistance against the parasite.

Key words: sunflower broomrape, genetic control, qualitative resistance, quantitative resistance, herbicides resistance

VELICHI Eugen

"Dunarea de Jos" University Galati, Romania

Influența unor tratamente cu diferite produse de uz fitosanitar (fungicide) asupra atacului unor ciuperci fitopatogene și asupra producției la orz, soiul Donau în condițiile pedoclimatice ale Bărăganului de Est în anul 2019 ❖ The influence of treatments with various phytosanitary products (fungicides) on the attack of some phytopathogenic fungi on barley harvest, Donau variety, in 2019 pedoclimatic conditions of the Eastern Baragan

This study aims at monitoring the dynamics of the occurrence and evolution of the attack of some pathogenic agents to barley, among which we mention: mildew (*Blumeria graminis* f.sp. *tritici*), leaf stripe (*Pyrenophora graminea*) and barley's rust (*Puccinia hordei*). Also, the influence of applying these fungicides on the harvest was monitored, as compared to the untreated control variant. For this study,

an experiment with 6 treatment variants was created, in which the following phytosanitary products were used, as follows: - ACANTO PLUS (picoxystrobin 200 g/l + cyproconazole 80 g/l); - MYSTIC 250 EC (tebuconazole 250 g/l); - FALCON PRO (prothioconazole 53 g/l+tebuconazole 148 g/l + spiroxamine 224 g/l); - CAPALO (fenpropimorph 200g/l, epoxiconazole 62,5 g/l, metrafenon 75g/l) The treatment variants were the following: - V1 - ACANTO PLUS 0.5 l·ha⁻¹ treatment applied at spike's release - blooming (5.05. 2019); - V2 - ACANTO PLUS 0.5 l·ha⁻¹ treatment applied in "bellows" phase (20.04.2019) + 1 treatment applied at the beginning of kernel's filling (27.05.2019); - V3 - CAPALO 1.0 l·ha⁻¹ treatment applied at spike's release - blooming (5.05. 2019); - V4 - MYSTIC 250 EC 0.5 l·ha⁻¹+ 1 CAPALO 0.5 L/HA treatment applied in "bellows" phase (20.04.2019)+ 1 treatment applied at the beginning of kernel's filling (27.05.2019); - V5 - FALCON PRO 0.6 l·ha⁻¹ treatment applied at spike's release - blooming (5.05.2019); - V6 - ACANTO PLUS 0.5 l·ha⁻¹+ FALCON PRO 0.5 l·ha⁻¹ treatment applied in "bellows" phase (20.04.2019) 1 treatment applied at the beginning of kernel's filling (27.05. 2019). - V7 – Untreated control variant. The experiment was placed in Latin square, the 7 variants being placed in 7 repetitions. The first two leaves placed under the spike had been analyzed for the above. Among the pathogenic agents under monitoring, the greatest attacks were produced by *Pyrenophora graminea* fungus which produces barley leaf stripe disease. The harvests of the variants were the following: V1 - 5634 kg·ha⁻¹, V2 - 5951 kg·ha⁻¹, V3 - 5669 kg·ha⁻¹, V4 - 5658 kg·ha⁻¹, V5 - 5494 kg·ha⁻¹, V6 - 5704 kg·ha⁻¹ and V7 (untreated control variant) - 5506 kg·ha⁻¹.

Keywords: *Pyrenophora*, cyproconazole, Latin square

THIRD SECTION

ECONOMIC SCIENCE AND HUMANITIES



AGROTOURISM
AGRICULTURAL CONSULTANCY
ACCOUNTANCY
RURAL DEVELOPMENT
AGRICULTURAL ECONOMICS
AGRICULTURAL LEGISLATION
MODERN LANGUAGES
MANAGEMENT
MARKETING
PEDAGOGY AND METHODOLOGY
AGRICULTURAL POLITICS
RURAL SOCIOLOGY

PLENARY SESSION

GOLBAN Artur, GOLBAN Ghenadie

State Agrarian University, Moldova

Criminalitate financiară: Cum instituțiile financiare pot diminua riscul de spălare de bani asociat cu persoane expuse politic și îmbunătăți programul lor de conformitate ❖ **Financial Crime:** How financial institutions can mitigate money laundering risk associated with Politically Exposed Persons and improve their compliance program

The customer acceptance policy of financial institutions stipulates that the Bank shall enter in business relationship and offer banking products and services to customers based on risk appetite correlated to the reputational risk. According to Financial Action Task Force (FATF), a politically exposed person (PEP) is “an individual who is or has been entrusted with a prominent public function: Heads of State or of government, senior politicians, senior government, judicial or military officials, senior executives of state owned corporations, important political party officials, etc.” The business relationship involving politically exposed persons (PEPs) is classified according to Know Your Customer and Anti Money Laundering Principles with high risk, because PEPs have the position to influence some decisions at state level, being involved in corruption, bribery schemes; they have access to significant state funds which can be laundered through companies owned by PEPs, their relatives or close associates by abusing of PEPs high position. The purpose of this scientific research is to highlight the money laundering risk

indicators connected to PEPs and to propose mitigation measures to be applied by financial institutions, while strengthening their controls, as a part of an effective compliance program.

Key words: Anti-Money Laundering, Politically Exposed Person (PEP), Sanctions, Compliance Program

**MIHĂILĂ (BORZA) Mioara¹, LEONTE Elena², BOGHIȚĂ Eduard²,
ROBU Alexandru**

¹"Alexandru Ioan Cuza" University Iasi, Romania

²UASVM Iasi, Romania

Dezvoltarea și diversificarea economiei rurale prin finanțarea proiectelor turistice ❖ The development and diversification of the rural economy by financing the tourism projects

This paper approaches the issue of the rural economy, from the perspective of need for its diversification and development. As a tertiary component of the economic environment, the tourism is proving to be more and more attractive for the investments in the rural areas, most likely as a consequence of the social changes based on the urban-rural relationship in the context of the technologic and social progress obtained at a very fast pace. Thus, by reconsidering the touristic values by multiple perspective - economic, social, ecological - at national level were implemented more and more tourism projects, some of which are strategic and of very large amplitude, with significant impact on the economic development in the rural areas. To this end, we take into account the issue of the rural economy development through value awareness and highlighting the programs for financing the tourism projects in the last 10 years for the North-East Development Region. The research, theoretical-empirical, is based on thematic description, analysis and synthesis. It considers the basic indicators of the rural economy development for the analyzed region and it concludes about the progresses obtained towards the diversification of the rural economy and the tourism contribution to this progress. The main result of the paper is highlighted by a dashboard built on the basis of the indicators that allow the quantification of the progress obtained in the rural areas through the economic diversification determined by projects funded in tourism. A main conclusion of the study is that, undoubtedly, a tourism project is a notable determinant of the economic development, with multiplier effects beneficial to the rural environment where was implemented. The North-East Development Region was the beneficiary of such major projects, presented in the paper, which led to significant changes in the urban-rural relationship, but especially had a key contribution to the development of the rural economy in the analyzed region.

Key words: rural economy, development, tourism, projects

**UNGUREANU George, IGNAT Gabriela, COSTULEANU Carmen Luiza,
VIZITEU Ștefan**

UASVM Iasi, Romania

Particularitățile agriculturii românești în contextul strategiei de dezvoltare durabilă a Uniunii Europene ❖ Features of Romanian

agriculture in the context of the sustainable development strategy of the European Union

The paper highlights the regional development strategies of the North-East Region, solutions to improve the process of strategic implementation of development objectives, by providing viable tools for monitoring sustainable development at regional and rural level, eliminating their oversizing trends. The target indicators proposed by this paper and their substantiation allow such a realistic and correct estimation of the strategic implementation and the measurement of the impact of the strategic objectives. However, the peculiarities of Romanian agriculture remain almost similar to the pre-accession period (fragmented agrarian structures, low technical and economic yields, outdated technical endowment, etc.), and the main question is whether community support mechanisms increase or remain Romanian farm performance. support measures to ensure their survival on the market. Sustainable development - a development model that seeks to ensure a balance between economic growth, quality of life and environmental conservation in the medium and long term, so as to meet the needs of the current generation without compromising the ability to meet the needs of future generations - has represented decades, the guideline that has underpinned development policies, programs and strategies. The issue of the mechanisms for financial support of Romania's agriculture, as a member state since 2007, is very important in our country's efforts to become competitive on the European agricultural market. In this context, we consider that proposed and substantiated result indicators starting from the previous trend of the region, for all strategic priorities 2014-2020, can be much better materialized in projects with major impact on sustainable development both at regional level and rural environment, and how to evaluate and estimate them is a viable methodology for monitoring regional development strategies.

Key words: development, sustainability, strategy, strategic objectives, indicators

COLIBABA Cintia, GHEORGHIO Irina, ANTONIȚĂ Carmen, DĂNĂILĂ Dana, APETRĂCHEOAE Alexandra, COLIBABA Anais

UASVM Iasi, Romania

Proiectul Clil4Steam: învățarea disciplinelor științifice și a limbilor străine ❖ The Clil4Steam project: full steam ahead towards learning science and languages

The article is based on the CLIL4STEAM project (Erasmus+ Programme - 2019-1-PL01- KA201-065027), which is being implemented by EuroEd Foundation Iasi, Romania and other organisations, institutions and high schools from Italy, Ireland, Lithuania and Poland, the last being the project's coordinator. The ideas of the project rely on the importance of science and language learning in education nowadays. The project stimulates the creation of a community of practice where teachers and educators work together to promote scientific and language knowledge and competences in school education through the Content and Language Integrated Learning (CLIL) methodology. The CLIL method has proved to be an effective

strategy for motivating students to improve their science and language knowledge. The benefits of CLIL may be seen in terms of cultural awareness, language competence, preparation for both study and working life, and increased motivation. The project aims to provide teachers with the necessary knowledge and skills to create CLIL based teaching materials focusing on STEAM curricula. The article presents the project's objectives, methodology, its main outputs and their impact on the teachers participating in the project. The partnership identified twenty most relevant topics in science which were illustrated by short videos in English with subtitles in partners' languages. Research focused on finding the most relevant and useful teaching resources on the internet. These resources were accompanied by tips and concrete explanations as to how to integrate them into engaging and meaningful lessons as well as interactive online activities which enabled students to further practice the language and consolidate the content (e.g. matching, crosswords, quizzes, word search). The products were tested on 50 teachers, who evaluated the CLIL method used in the project and the project's platform.

Key words: science, languages, CLIL, teachers, learning

STANCIU (ANGHELUȚĂ) Nicoleta

Tecuci National College of Agriculture and Economics, Romania

Incidența fiscalității asupra unităților agricole din județul Galați ❖ The incidence of taxation on agricultural units in Galati County

The paper analyzes the incidence of taxation on agricultural units in Galati County, as well as in our country considering both theoretical and practical aspects. For this purpose, the highlighting of the particularities of the main categories of fiscal incomes, including the social insurance contributions, are taken into account. Also, the study is completed with an aspect regarding tax evasion. There is a close link between the degree of development of an economy and taxation, as it largely influences both the activity of legal entities (having a significant impact on corporate profits, investment decision and more) and individuals (in the form of their employees, PFA, II, family associations, etc.). The fiscal system can be used as a tool to regulate economic life, state intervention in the economy to eliminate imbalances in different periods of economic life. In fact, the relationship between taxation and the level of development of the economy is conditional: a stable, developed economy always reflects an environment conducive to fiscal relaxation (this is not always true in a transition economy, reducing fiscal pressure does not have the expected effect on economic development as a result of the tendency of economic operators to divert additional revenues from the economic circuit). Each state promotes its own fiscal policy, establishing the number, type and size of taxes and fees borne by taxpayers. They are structured according to different criteria in order to assess and analyze the effects of taxation on the dynamics of the economy. The most used criterion is the one referring to the legal and administrative characteristics, in relation to which the taxes are divided into direct taxes and indirect taxes. The objective of this paper is to carry out a comparative study of the tax system in Romania and in the rest of the member countries of the European

Union. In this regard, I will compare several components of the tax system, such as income tax, income tax and value added tax.

Key words: incidence, taxation, agricultural units, contributions, taxes

STANCIU Mihai, BREZULEANU Carmen-Olguța

UASVM Iasi, Romania

Curriculumul universitar antreprenorial non-formal: experiențe și perspective ❖ Non-formal entrepreneurial university curriculum: experiences and perspectives

Rethinking the curriculum in general, especially the university one, is a major coordinate of educational reforms. The aim of these transformations is to adapt educational structures to the profound changes of the world where we live, emphasizing the proactive dimension of the educational effort. We proposed to analyse the evolution of the non-formal entrepreneurial university curriculum, highlighting university experiences in this regard. Entrepreneurial education (EE) is one of the fastest growing areas of education in the world (Solomon D., 2007). We integrate entrepreneurial education within “the new educations” (Stanciu M., 2003). Investing in entrepreneurial education is one of the most profitable investments Europe can make: research shows that participating pupils and students are 3 to 6 times more likely to open a business later, at some point in their lives, compared to the ones who do not benefit from entrepreneurial education (European Commission, 2013). One of the eight key competences established at the EU level (2006) was entrepreneurial competence. Research has led to the creation of the entrepreneurial university (Burton R. Clark, 1998, 2004), which was under the sign of a triple helix: university-industry-government (Etzkowitz H. and Leydesdorff L., 1999). The key to a knowledge-based economy is research, education and innovation. The communication presents concrete action directions for the development of students' entrepreneurial skills through non-formal activities at USAMV Iași (Student Entrepreneurial Society, postgraduate entrepreneurship education courses, funding projects, trips and visits to agricultural companies and firms, internship, to.).

Key words: non-formal entrepreneurial curriculum; entrepreneurship education; entrepreneurial university; entrepreneurship minor; entrepreneurial training of teachers

BREZULEANU Carmen-Olguta, SIRGHEA Alina

UASVM Iasi, Romania

Spre o înțelegere a dezvoltării profesionale a profesorilor în era digitală ❖ Understanding the professional development of teachers in digital age

The present paper analyzes the importance of quality education and focuses on preparing teachers to delivery it. Today's society is characterized by its constant technological change. Today's students are increasingly aware of the world of technologies; That is why educators see the need to take advantage of this new source of intrinsic motivation using tools of this type and incorporate them in the

development of activities that encourage students to take an active part in their learning processes. The use of these teaching mechanisms allows increasing the possibility of promoting new forms of learning oriented to the development of thinking strategies and interaction with other individuals while stimulating their level of personal activity. The use of technologies allows information to be acquired, processed, stored and disseminated, which contributes to the training of people so that they can adapt to new social challenges. In this sense, it is considered that educator training should be aimed at generating reflections on processes aimed at promoting the pedagogical use of tools, resources, programs, services and environments characterized by the use of technology. The 21st century teacher needs much more than a superficial or mechanical understanding of the fundamental ideas of a discipline. It must also penetrate the deep structures of knowledge and their relationships, as well as the methods of testing, evaluating and expanding them. They need pedagogical skills to make flexible use of knowledge, as this is how they can pay attention to the ideas that arise in the course of the learning process.

Key words: teacher's competences, digital skills, LKT tools

SÎRGHEA Alina, CANTEA-BREZULEANU Mădălina Maria

UASVM Iasi, Romania

Nativi si imigranti digitali. Identificarea decalajului ❖ Digital Natives and Immigrants. Finding the gap

The presented paper investigates the needs of digital immigrants (generally those born before the year 1985 (those before the Millennial generation are considered to be digital immigrants and those born after 1985 are digital natives, having grown up only in a world defined by the internet and smart devices, Prensky, 2001). Digital immigrants should integrate and use the ICT argued for the introduction of Information and Communication Technologies (hereinafter ICT) in public policies in education. However, there is consensus on four basic arguments (OECD, 2001): are a basic skill, such as reading, writing, and math, they represent an opportunity for economic development and a requirement for employment, they are a tool for school management, they are a tool that improves the teaching and learning process. The first two arguments are linked to the potential socioeconomic benefits attributed to the use and appropriation of ICTs. These have an impact on human development, both that one of the development goals for the millennium postulates that it is necessary to “ensure that can take advantage of the benefits of new technologies, in particular those of information and communications” (ONU, 2013). In relation to the potential economic benefits, it is reasonable to assume that, with the use of ICT, the inhabitants of developed countries acquire skills and competencies that complement their possibilities to function successfully in society. However, these arguments should be considered with more caution in developing countries, since in these people do not necessarily have the basic skills necessary to effectively take advantage of the potential of ICT.

Key words: digital natives, digital immigrants, educational gap

BITERE Sanda Beatrice, MORARU Radu Adrian

"Gheorghe Asachi" County Library, Iasi, Romania

Începuturile presei agricole Românești: o cronică succintă ❖ The beginnings of the Romanian agricultural press: a brief review

The aim of the present paper is to review, following the printing timeline, the first Romanian periodical publications including agriculture related information, in order to facilitate a better perception and understanding of its development in historical, economic and social context. The studied period covers three decades having as milestones the appearance of "Curierul românesc" = "The Romanian Courier" (Bucharest, 8th April 1829), "the veteran" of the general information press and that of the specialized journal "Agronomia" = "Agronomy" (Bucharest, 15th March 1859). The authors are introducing, within a chronological roadmap, 12 periodical publications considered illustrative for the beginnings of the Romanian agricultural press, complemented – from the "precursors", as meaningful by content and author - with "Calendar pentru bunul gospodar" = "Calendar for the good householder" (Iasi, 1845, by Ion Ionescu de la Brad). The brief bibliographic description of each document conducted to relevant considerations concerning: the appearance and evolution of the old Romanian agricultural press during the period 1829-1860, its educational role in society and its contribution to knowledge and progress, the great founders, the diversification of the approached fields and topics of interest, the target-categories of readers, the transition of writing, reading and printing from the Chyrillic alphabet to the Latin one, the development of the printing houses etc. The studied documents reflect the collections of the Romanian Academy Library.

Key words: Romanian agricultural press, beginnings, role

CIUȘTEA (BUTNARU) Mintenica Mariana

UASVM Iasi, Romania

Posibilități de dezvoltare a fermelor agricole din regiunea N-E prin atragerea fondurilor europene ❖ Rural development approach in Romania's sustainable Development Strategy 2014-2020

The paper aims to present a synthesis of data from the literature on the situation of Romanian agriculture in the European context, emphasizing the concept of agricultural farm development by attracting European funds. The research aimed at the diagnostic analysis of the results obtained by agricultural farms and the impact of European funds in the context of integration into the European Union. It is found that, after Romania's accession to the European Union, the possibilities for the development of agricultural farms have increased, as a result of their advantage of accessing European funds, with a fairly large share of their non-reimbursement. In this context, the research started from the economic-financial analysis of the situation of agriculture in the North-East Development Region, according to which to proceed to adopt measures that will lead, first of all, to the increase of agricultural production and, in secondly, to make it more efficient by attracting European funds.

The need to reorganize this sector according to European Union standards requires the adoption of a new model of planning, organization, motivation, coordination and control at the level of all its mechanisms. From the point of view of the measures offered in support of the European Union, it should also be mentioned that, atypically, for the EAFRD, it was not the aggressive media coverage that determined the placement of certain counties in the first positions, but rather the capital inflows that penetrated the last period in these counties, in conjunction, most likely with open management by the local authorities involved. Research methodology was based on the investigation of information from official documents, but also from technical-economic analysis, SWOT analysis and case studies. The results obtained through the research undertaken can be models for farmers to develop their agricultural activity and improve the technologies used, both in plant production and in animal husbandry.

Key words: european funds, development, agricultural farms, efficiency, measures

VÂLCU Carmen¹, COSTULEANU Carmen Luiza², IGNAT Gabriela², GEORGESCU Iuliana Eugenia¹

¹"Alexandru Ioan Cuza" University Iasi, Romania

²UASVM Iasi, Romania

Avantajele și dezavantajele anumitor tipuri de organizații antreprenoriale ❖ Advantages and disadvantages of certain types of entrepreneurial organization

This paper is a short comparative study between two types of enterprise organizations, namely Micro Businesses and Self-Employed Persons, comparison made in terms of business organization and accounting. The outcome of the study reveals a series of accounting and fiscal elements, which are either advantageous or, as the case may be, disadvantageous to businesses in our country. In order to highlight the impact of the law changes on the business environment in Romania, we analysed the Micro Business/ Self-Employed Person registration versus striking-off report over the period 2009-2019.

Key words: Micro Business, Self-Employed Person, taxes, registrations, striking-off

BODESCU Dan, COJOCARIU George-Sebastian

UASVM Iasi, Romania

Cercetări de economie aplicată cu privire la specializarea sau diversificarea în agricultură - studiu de caz ❖ Research on applied economics regarding specialization or diversification in agriculture - case study

The purpose of the research presented in this paper is to verify and establish how a farm can improve its profit, without being subject to a high degree of risk by: analyzing the economic data of a diversified farm and establishing the economic effects in case of specialization of its production. The differences in economic efficiency between the specialization and diversification of the structure of

agricultural crops are analyzed. Determining factors include different characteristics of the holding, including size, total production, production per hectare, total income, income per hectare, total fixed and variable costs as well as at the level of one hectare, profit, variability, using averages obtained / hectare. At the end of the paper, the relationship between production and profit was demonstrated in the case of several situations, namely when production decreases by 10%, 15% and 20% respectively. The research results contradict the general opinion that the company's activity is safer as the number of existing crops increases. It is highlighted the conclusion that a company with a profit maximized through specialized activities will recover its eventual losses from the profit of the favorable periods.

Key words: specialization, diversification, profit, agriculture

SÎRGHEA Alina

UASVM Iasi, Romania

Parenting în era digitală. Oportunități și provocări ❖ Digital parenting. Opportunities and challenges

The proposed work addresses new digital parenting styles and analyzes through research in European countries how parents respond to media challenges in an era invaded by various technological resources. The appropriation of digital media into families' everyday lives is influenced by parenting styles or ethics (Clark, 2013). Parents are variously equipped to face the increasing complexity of the digital world and its social and developmental consequences. Inequalities in parental mediation have emerged based on parents' education or socio-economic status (Livingstone et al., 2017; Paus-Hasebrink et al., 2013). Even among parents of young children, lower income/lower educated parents are likely to experience a generational digital divide and feel less confident in their ability to guide children's use of touchscreens and prevent their exposure to risks. As a consequence, they are reluctant to engage in parental mediation and scaffolding of their children's digital literacy practices. Children are left to experiment on their own, learning by trial and error, or seek out support from their older siblings (Mascheroni et al., 2016). A similar digital generation gap is experienced in developing countries, especially among rural families where parents lag behind in the adoption and use of technology and children are likely to teach their parents how to use computers, mobile phones and the internet (Correa, 2014). Prior research into parental mediation has shown that children act as agents of change, by introducing new technologies in the family, reversing existing media rules or creating new rules, guiding their parents' use, and mediating media effects (van den Bulck et al., 2016).

Key words: digital generation, digital parenting, parents education, parental communication, reversing roles

MIHĂILĂ (BORZA) Mioara¹, BODESCU Dan², ROBU Maria²

¹"Alexandru Ioan Cuza" University Iasi, Romania

²UASVM Iasi, Romania

Promovarea afacerilor verzi - pilon al dezvoltării durabile ❖ Promoting the green business - a pillar of the sustainable development

The evolutionary trends of the economic and social environment are increasingly associated with new forms of the economic growth and development, focused on the attention given to the relation with the environment and the impact on this. This orientation is also supported by the sustainable development strategies, which are increasingly active for the national business practices. By this paper, we aim to bring together, in a common vision, the approaches that support a balanced economic growth, in accordance with the requirements of the environmental protection and the natural resources conservation. Through a qualitative empirical research, we identify the green businesses as a pillar of the sustainable development that supports the evolution of the business environment in a consolidated and balanced pace. The analysis, descriptive-exploratory, is based on synthesis and exemplification and follows the evolution of green business in the last 10 years, at European and national level, starting from the European experiences in the countries that have supported and promoted the mechanisms to strengthen the green business. The results of the study are materialized in a synoptic presentation of the national business environment oriented towards the green business, arguing the need to connect the strategic requirements of the sustainable development, Horizon 2030, with the specific objectives of any form of business: profitability and stability. Thus, we present a general dashboard that groups the most relevant areas in which green businesses in Romania have demonstrated their sustainability, considering both economic and social objectives, as well as the ecological ones. Although the means of promoting such businesses are not very visible, sufficiently transparent or strongly supported, we draw some conclusions which support the hypothesis that the future of a solid and sustainable business environment requires the reconsideration of the economy-environment relationship and promoting the symbiotic perspective on which the green business it is based.

Key words: green business, sustainable development, eco-economics

BODESCU Dan, GHIORGHICIUC Dorina-Lenuța

UASVM Iasi, Romania

Cercetarea reacției societății cu privire la pandemia COVID-19 ❖ Investigating the company's reaction to the COVID-19 pandemic

The purpose of the research presented in this paper is to determine the reaction of society to the COVID-19 pandemic with the objectives of: 1. Determining the social perception of the Covid-19 phenomenon and its spread; 2. reporting the population to the existing situation, namely to the observance of the measures imposed by the authorities; 3. the attitude of the competent authorities in this situation. as a research method direct observation, a qualitative research method, also using the questionnaire, a quantitative research method, to be able to communicate and centralize the data. A predetermined number of people were put in the situation of being observers and were asked to, in a certain period of time, to observe and analyze the behavior of passers-by on the street, without intervening

in any way. The final data were collected through a questionnaire structured on 7 questions that followed the predetermined characteristics. The characteristics pursued were: their age and type, the protective equipment owned by each person, the number of pet owners, the frequency of patrolling the authorities during that time, the number of people who should not have gone out, being in isolation or quarantine and the number of groups of more than three people who circulated at the time, although the rules do not allow this. In the interview with the observers in order to find out the opinion on the pandemic, it was found that: the current situation is a difficult one, life will not be the same, that many things will change; a difficult period is also considered in the education system, the administration of the vaccine is refused by all groups of respondents, due to lack of trust; most of the interviewees claim that the effects of the virus are serious, while the manipulation technique is secondary, most of the interviewees claim that the pandemic is just a way of manipulation.

Key words: society's reaction, sociology, rural

POSTER SESSION

MATEI Andrei-Cristian, MĂDESCU Bianca-Maria

Dancu Cattle Breeding Research and Development Station - Iasi, Romania

Fondul European de Garantare Agricolă (FEGA) în dezvoltarea agriculturii europene ❖ European Agricultural Guarantee Fund (EAGF) in the development of European agriculture

Common Agricultural Policy (CAP) is financed by 2 funds drawn from the EU budget: European Agricultural Guarantee Fund (EAGF) and European Agricultural Fund for Rural Development (EAFDR). The aim of this research is to observe the impact of the (EAGF) on the development of European agriculture. CAP expenditure is financed under the 2014-2020 financial framework as provided for in Council Regulation (EU) No 1311/2013. Especially, CAP spending is part of the ceiling set for Heading 2-Sustainable growth: natural resources. Within this overall ceiling, a specific sub-ceiling for market related expenditure and direct payments funded by the (EAGF) has been established. In accordance with Article 43 of Regulation (EC) No 1306/2013 on the annual funding of the Common Agricultural Policy, income from financial adjustments under accounting or conformity clearance actions, irregularities and milk levies shall be designated as revenue allocated to the financing of EAGF spending. Based on the Implementing Regulation (EU) no. Commission Regulation (EC) No 367/2014, which sets the net balance available for EAGF expenditure, this research looked at the amounts allocated in the 2014 - 2020 financial framework (49.8 billion euro in 2014; 64.6 in 2015; 64.2 in 2016; 60.1 in 2017; 60.2 in 2018; 60.3 in 2019 and 60.4 in 2020). The evolution of the breakdown of EAGF expenditure in the financial year 2012-2018 was also observed, presenting the amounts allocated at European level for budget execution, storage, export refunds, direct payments, other market measures and direct management payments, with a target of around 94% of the annual EAGF budget towards direct payments, 5% towards agricultural market interventions and only 1% to other measures.

Key words: agriculture, development, funding, payments

IGNAT Gabriela, ȘARGU Lilia, BIVOL Teodor, BIVOL NIGEL Anelisse, ȘARGU Nicu

UASVM Iasi, Romania

Studii privind politica de comunicare la S.C. Alcovin, Tulcea ❖ Studies on communication policy at S.C. Alcovin, Tulcea

In order to be able to adapt to the new challenges on the wine market, the success of a company depends on knowing and adopting key elements of a communication policy anchored in a strategic marketing process. This paperwork combines theoretical and practical elements, the case study being conducted at SC Alcovin Macin, Tulcea. The definition of marketing communication within the marketing field given by Schultz & Schultz in 2004, is that this concept represents “a strategic process used to plan, develop, execute and evaluate, over time, coordinated,

measurable brand communication programs and persuasive, consumer-oriented, prospectus and other relevant target segments, internal and external ". Schultz & Schultz also support the idea that there are four stages in the development of marketing communication. The entire marketing policy should support brand awareness and contribute to the positive feeling towards it. The team of authors of this paperwork tried to describe and analyze the elements of the communication policy (financial and promotional) used in general on the wine market and also in particular within SC Alcovin SRL. We consider that the communication policy approached in a wine entity such as the one from our case study, can influence the behavior of the target audience. The pillars will be based on well-defined objectives as well as correctly established and communicated financial resources. In the context of globalization, the increase of competition on the wine market determines the establishment and use of a communication policy based on the most solid, efficient, innovative and high-performance strategic techniques. A good communication policy will take into account the 6 key points presented in the paper. We expect that within the future researches we will be able to extend the study to two wineries, one in Iasi County and the other in the Republic of Moldova.

Key words: ommunication policy, marketing, strategies, promotion techniques, performance

CIUȘTEA (BUTNARU) Mintenica Mariana

UASVM Iasi, Romania

Abordarea dezvoltării durabile și rurale din regiunea NE a României în context strategic ❖ Approaching sustainable and rural development in the NE region of Romania in a strategic context

The paper aimed to identify how to approach sustainable development in regional development strategies, having as a case study the North-East Region, and to evaluate how to implement strategic objectives, at regional and rural level. The paper aims to identify new strategic proposals to ensure sustainable development of rural areas, by using a system of specific, quantifiable and representative indicators that allow, through econometric analysis, evaluation of results and projection of the evolution of sustainable development. In the conditions of intensification, increase of plant production, but also of rural development, as basic links of socio-economic progress, there is the problem of achieving and maintaining the growth of agro-zootechnical production without major damage to the environment and health of humans and other living things. of the food chain. This priority task must be addressed in the light of the concept of sustainable agricultural development. Sustainable development is conceived as a necessity of reconciliation between the economy and the environment, on a new path of development that supports human progress, not only in a few places and for a few years, but everywhere and for a long future. This is in fact the only long-term alternative to the environmental crisis generated by human society. In the 2014-2020 strategy, the EU intended to spend almost € 100 billion on rural development policy through the European Agricultural Fund for Rural Development (EAFRD). One of the

objectives of the EU's strategic framework for 2014-2020 was to place greater emphasis on delivering results. However, efforts in this area have been faced with the eternal problem of planning a new programming period before relevant data on expenditure and results from the previous period are available.

Key words: approach, sustainable development, strategies, regional, European

BOGHIȚĂ Eduard, BORZA Mioara, UNGUREANU George, VIZITEU Ștefan, ROBU Alexandru Dragoș

UASVM Iasi, Romania

Studii privind securitatea alimentară pe plan mondial, european și național ❖ Studies concerning world, European and national food security

The term food security appeared in the interwar period and over time there have been numerous attempts to define the notion. At global, European and national level, food security policies are regulated by a number of institutions and organizations with a supervisory, guiding and controlling role. The most important institutions dealing with food security regulation worldwide are: WHO, FAO, IFPRI, at European level: European Commission, Council of the European Union and European Parliament, and at national level: MADR, ANPC, ANSVSA and the Ministry of Health. Food insecurity is a prolonged lack of “sufficient safe, nutritious food to maintain a healthy and active life” (FAO, 1996) and is generally caused by extreme poverty. In the context of food security, extreme poverty is synonymous with acute food shortages. The factors can be varied: from high prices, to economic recessions, natural disasters, political unrest and violent conflicts. Two thirds of the world's population vulnerable to food insecurity live in African countries, or in countries with a large population such as: India, Bangladesh, Indonesia, Pakistan. In these countries, food security is correlated with both poverty and the many conflicts, we can add here environmental pollution, limited access to water resources. Regarding Romania, the agri-food stability is influenced by a series of factors starting from the reduction of the available agricultural areas, the precarious endowment of the Romanian farmer. A possible food crisis in our country will be generated, most likely by a mismanagement of an already existing vulnerability. From a demographic point of view, we will witness a decline through the process of aging and natural population decline. According to INS calculations, it is estimated that Romania's population will decrease, which will bring with it serious problems related to labor force and production capacity. In our country 45.7% of the population lives in rural areas and 30% of the population works in agriculture compared to the EU, which has a rural population of 23.6% and a population employed in agriculture up to 14%.

Key words: food security, vulnerability, agri-food stability, food crisis

DONOȘĂ Dan

UASVM Iasi, Romania

Aspecte privind intermedierea financiară globală ❖ Aspects on global financial intermediation

The paper examines global credit intermediation in terms of financial markets and post-crisis financial intermediaries, in which highly adaptable monetary policies have contributed to investor returns. The evolution of global financial intermediation is examined in three key ways. The first refers to the large-scale increase in financial intermediation relative to GDP in many advanced countries and emerging market economies, and with this growth shows a shift towards market-based financing. Second, it assesses the transition from equity to debt markets and the growing imbalances of sovereign and corporate debt markets in a period of highly adaptive monetary policies. Third, it draws attention to key lending activities that could contribute to structural vulnerabilities in the global financial system, including: a sharp rise in corporate debt below investment level, in particular the leverage effect of secured loans and loan obligations.; increase open-end investment funds that buy high-yield debt and leverage; and the risks associated with the large stock of bank quota in convertible debt. Thus, it reviews the extent to which non-bank intermediation has contributed to increasing the level of sovereign and corporate debt and the expansion of global credit markets. It also assesses the forms of market financing that contribute to financial vulnerabilities, including leverage and secured loan obligations (CLOs), fixed income investment funds and convertible conditional bank debt. Post-crisis policy scenarios should adapt to the shift to market-based financing in many countries, to allow a better analysis of the interactions between monetary, prudential and regulatory instruments in terms of credit intermediation and risk. Policies should also consider the optimal combination of macro-prudential and activity-based instruments through non-bank lending to address vulnerabilities without undermining the benefits of market-based finance.

Key words: credit, financial intermediation, global debt

STANCIU (ANGHELUȚĂ) Nicoleta

Tecuci National College of Agriculture and Economics, Romania

Contribuția fiscalității în dezvoltarea agriculturii în România și în alte țări ale Uniunii Europene ❖ The contribution of taxation in the development of agriculture in Romania and in other countries of the European Union

In this paper, we will focus on the identification and analysis of taxation in Romania to achieve the ultimate goal according to the specifications of its own economy. In the analysis, I will start from the idea that the taxation of a state has, correlated with other policies, the possibility to guide the course of an economy towards achieving a long-term sustainable economic growth. Our premise based on the analysis of the Romanian economy is that a model of economic growth that is not healthy creates a dangerous spiral that can affect the world's economies and the evolution of the Romanian economy through the transmission mechanisms of monetary policy. Taxation had and still has a negative image, being considered by taxpayers a form of coercion that requires money, and to recognize that some of this money is returned to taxpayers indirectly through redistribution. The tendency of all

taxpayers to reduce the tax base is recognized so that the volume of taxes and duties owed to the community is as small as possible. Regardless of the negative image of taxation, it is a “necessary evil” because through the contribution of each natural or legal person the development of a community takes place. We consider that Romania's accession to the European Union has had a major impact on all sectors of activity of the national economy and especially on agriculture due to the application of instruments and financing mechanisms specific to the Common Agricultural Policy, addressed to agricultural holdings that produce for the market. Given that in Romania the subsistence and semi-subsistence households are dominant in number and area, there is a risk of losing some economic and financial advantages if their restructuring process is not accelerated. During the examined period, the tax implies the collection of individual financial means, without equivalent or according to the right of the strong one, or according to the legislative right for the purpose of forming the financial fund, used for the fulfillment of its functions by the state.

Key words: analysis of taxation, economy, restructuring, sustainability, monetary policy

ROBU Alexandru-Dragoș, COSTULEANU Carmen-Luiza, UNGUREANU George, BORZA Mioara, BREZULEANU Stejărel

UASVM Iasi, Romania

Infrastructura secundară de irigații din România: influența modernizării organizațiilor utilizatorilor de apă pentru irigații asupra performanței fermelor membre ❖ Secondary irrigation infrastructure in Romania: influence of the water user's associations modernization on the performance of their member farms

In this paper the authors undertook an analysis of the Water User's Associations influence on the performance of their members and on the agricultural sector. The existing crop irrigation infrastructure was built during the communist period, before 1989. It was divided, since it's been built, into primary and secondary infrastructure. After 1989, the secondary infrastructure, usually built in key spots, in the proximity of water sources and farms, was assigned to these units for maintenance and modernization. Water User's Associations are non-profit economic units that can be established by a minimum of ten members, agricultural units, and can benefit for receiving such an infrastructure located in their proximity. Since Romania joined the E.U., some financial incentives have been developed with the purpose of modernization of the primary and secondary irrigation infrastructure. Thus, the secondary infrastructure can benefit from up to 1,000,000 Euro, with an intensity of 100% non-reimbursable for the modernization of its entire serving area. In this paper the authors analyze the effectiveness of such an investment, a specific investment amounting to 999,933 Euro. It will be shown how by carrying out the investment and modernizing the infrastructure, an annual saving of 6,621,000 cubic meters of water will be achieved, as well as an annual saving of at least 463,200 lei. As will be shown, the largest impact consists in the sufficient

irrigation of the crops that leads to yields up to 4 times higher per ha. The authors determined numerous indicators from the studies that are presented in the paper.

Key words: irrigation, crops, european incentives

BITERE Sanda Beatrice, MORARU Radu Adrian

"Gheorghe Asachi" County Library, Iasi, Romania

Patru decenii de presă agricolă românească (1861-1900): un studiu explorator ❖ An exploratory study on four decades of Romanian agricultural press (1861-1900)

In the present paper, the authors continue the study of the Romanian agricultural press during the XIXth century, with focus on the periodical publications with the date of appearance during the last four decades. Two main objectives are taken into account: 1. To establish a chronological roadmap of the Romanian agricultural press issued during the period 1861-1900, using simplified bibliographical descriptions; 2. To analyse its development in time and social-economic context, in terms of number of periodical prints and diversification. In this respect, from the reference period are introduced in chronological order 50 periodical publications, illustrating both the progress and structuring of the Romanian agriculture and of the agricultural institutional forms, as well as the increasing interest regarding the dissemination of the agricultural theoretical and practical knowledge, by the scientific, pedagogical and general-interest press. The typology of concern included prints as newspapers, magazines, bulletins, annals etc., identified within the serial collections from the Romanian Academy Library. In correlation are also pointed out key personalities of the time, who have significantly contributed to the issuing, development and spreading of the Romanian agricultural press.

Key words: Romanian agricultural press, evolution, typology

VÂLCU Carmen¹, COSTULEANU Carmen Luiza², IGNAT Gabriela², GEORGESCU Iuliana Eugenia¹

¹"Alexandru Ioan Cuza" University Iasi, Romania

²UASVM Iasi, Romania

Fiscalitatea: este mai bună rata liniară decât rata progresivă? ❖ Taxation: is flat rate better than progressive rate?

Our research aims to analyze the evolution in time and space of taxation rates and the impact of legislative changes on the microeconomic and macroeconomic environments, as well as the impact of legislative changes, the analysis of different models of tax systems based on the flat tax rate, used in Romania, or progressive tax rates, preferred in countries like France, Belgium and Luxembourg. Attempts at comparing personal income taxes are relatively rare and difficult to achieve precisely because of the tax legislation that is significantly different from one country to another in terms of tax base, tax rates or method of calculation of the various taxes and fees. Identifying the best taxation approach is the main goal of our paper. Our research is aimed at identifying the best taxation system, at determining the correlation between tax burden and tax income, thus analyzing the distributive effects of flat rates or progressive rates, and the effects of preferring

one to the other, in other words determining whether they encouraged the formation of a middle class or on the contrary, they have deepened the inequity among the population, the effects that these systems have had on the social, economic and political environments in Romania and in the French-speaking countries included in our research: France, Belgium and Luxembourg.

Key words: taxation, best taxation rate, flat rate, progressive rates

UNGUREANU George, COSTULEANU Carmen Luiza, IGNAT Gabriela, ROBU Dragoș Alexandru

UASVM Iasi, Romania

Strategii de dezvoltare rurală durabilă a regiunii de Nord-Est a României ❖ Strategies for sustainable rural development of the North-East region of Romania

The paper aims to identify how to approach sustainable development in regional development strategies, having as a case study the North-East Region, and to evaluate how to implement strategic objectives, at regional and rural level. The document aims to identify new strategic proposals to ensure the sustainable development of rural areas, using a system of specific, quantifiable and representative indicators that allow, through econometric analysis, the evaluation of results and the projection of sustainable development developments. The approach of sustainable development and rural development in a strategic context had above all a theoretical character, the analysis being oriented towards: the delimitation of the different conceptual aspects regarding the sustainable development and the strategies of sustainable development; addressing rural development from sustainable development; regulations on sustainable development at global, European and national level, etc. The paper thus highlights, starting from the analysis of regional development strategies of the Northeast Region, solutions to improve the process of strategic implementation of development objectives, by providing viable tools for monitoring development, sustainable development at regional and rural level, eliminating their trends disproportionate. The target indicators proposed by this document and their justification allow such a realistic and accurate estimation of the strategic implementation and the measurement of the impact of the strategic objectives. At European level, concerns about incorporating the principles of sustainable development into Member States' development strategies emerged with Agenda 21, but the approach was fragmented and policy implementation was inconsistent in trade, investment, technology and sustainable development. . Currently, however, European countries are considered to be at the forefront of formulating and implementing sustainable development strategies (SDSs), focusing on the objectives of the European Sustainable Development Strategy of 2006, namely: climate change and clean energy; sustainable transport; sustainable consumption and production; conservation and management of natural resources; public health; social inclusion, demography and migration; global poverty and challenges for sustainable development.

Key words: development, sustainable, strategies, implementation, rural development

DAȘCHIEVICI Andi Marius¹, AGOP Ștefana²

¹"Alexandru Ioan Cuza" University Iasi, Romania

²UASVM Iasi, Romania

Impactul neo-instituționalismului asupra dezvoltării rurale în România
❖ The impact of neoinstitutionalism on rural development in Romania

In the contemporary era we meet the free and democratic society that promotes the administrative bodies with the role of conventional game, which is a reflection of the constraints produced by political and economic agents. Interpersonal interaction plays an important role in the process of economic growth as it is based on an incentive system in order to highlight active and dynamic societies. The change in this case comes from the desire to standardize the three spheres: political, social and economic. At European level, the creation and implementation of effective governance tools creates the model of contemporary societies deeply based on past footprints, thus being "the key to understanding historical development". Neo-institutionalism is based on the emphasis and behavioral analysis of political and economic actors who become creators of market reforms. Their involvement in the process of economic growth is an attempt to stabilize the economy. Taking into account the geographical, historical, social and cultural conditions, the diversity of the rural area in Romania has led to the creation of an authentic space in which human capital is involved. Improving the standard of living of traditional villages can also be achieved by creating institutional reforms, in which political and economic agents play a very important role. For Romania, the sustainable development programs dedicated to the rural area, aim to promote cultural tourism, which involves preserving the traditional rural household and unique lifestyle. The way in which the Romanian rural area has evolved over time has led to a complete process of diversification of the policies and strategies established at the level of the European Union.

Key words: society, dynamic, capital, diversity, reforms, development

GHIOC (TĂNASĂ) Teodora-Ramona¹, AGOP Ștefana²

¹"Alexandru Ioan Cuza" University Iasi, Romania

²UASVM Iasi, Romania

Impactul neo-instituționalismului asupra dezvoltării durabile a zonelor rurale prin modele de creștere economică
❖ The impact of neo-institutionalism on the sustainable development of rural areas through economic growth models

The European Union was founded on the principle: "Unity in diversity", the traditional Romanian village offering an overview of the standard of living. Diversity becomes the key element that creates an authentic landscape in the countryside. Following the variety of rural areas, we can observe several unique socio-cultural and spiritual characteristics, which create a unique and authentic

rural space. In the roumanian rural space, we identify the presence of the neoinstitutional factor. Neo-institutionalism is the science that addresses the methodological side in the in-depth study of political, economic and sociological sciences. This current explores how institutional bodies create, implement and control the rules and norms at the level of rural society. In this context, emphasis is placed on the behavioral analysis of political and economic actors operating in rural areas, while also becoming creators of market reform. Their involvement in the process of economic growth is an attempt to stabilize the economy. The global economy is constantly changing, which is why researchers have had to improve their economic models over time. This provided insight into the dynamic analysis and various concerns revolve around the concept of economic growth. We can look at the phenomenon of "economic growth" in a broad sense, by the number of changes that occur in a certain time and space belonging to macroeconomic dimensions, but also in a narrow sense by the quantitative increase of economic results that are closely related with the influencing factors. The present economic growth is the first stage of the development of the concept of "economy of the future".

Key words: rural space, village, development, neo-institutionalism, economic growth

GHIOC (TĂNASĂ) Teodora-Ramona¹, AGOP Ștefana²

¹"Alexandru Ioan Cuza" University Iasi, Romania

²UASVM Iasi, Romania

Impactul neo-instituționalismului asupra dezvoltării durabile a zonelor rurale prin modele de creștere economică ❖ The impact of neo-institutionalism on the sustainable development of rural areas through economic growth models

Economists have been interested over time in the model of economic growth. The classical perspective supports the use of macroeconomic policies and direct state intervention to achieve balance and stimulate continued economic growth. In the view of the neoclassicists, the economy is seen as a stable branch, the balance being given by frequent changes. The level of development depends essentially on the human factor that creates legislative instruments to stabilize the economy. David Ricardo's economic conception is due to the economic developments in XIXth-century England. His desire was to find solutions to practical problems in the economic and financial sphere. The model succeeds in a unique way to delimit the historical aspects from the economic ones, David Ricardo becoming the first theorist who presents the theorem of value based on work as a methodological principle. He developed the theory of land rent throughout his career, due to the considerable volume of work in the culture of low-fertility lots, but which also had high values of customs duties on imports of grain from England. There are a number of data that can be identified in the

Ricardian analysis, as it presents the theory of absolute land rent that had in view the payment of taxes on land with a low fertility, but with a large number of production costs. In this sense, the product of Labor can be divided hierarchically between the social classes of society in the form of three components: land rent, salary and profit. In David Ricardo's view, the wage is seen as the natural price obtained between the value of labor, especially representing the value of labor determined by the means of subsistence. Ricardian model refer to the domestic market and the world market, the main determining factors of the exchange being the value of goods, but also the comparative cost that determines the objective and quantitative nature of the data. Thus, the value of the rent appears only if the phenomenon of overpopulation that takes place, which brings with it an increased population density and land deforestation, natural products in this case becoming less favorable and dictating the law at the market level.

Key words: macroeconomic, development, sustainability, society, rural space, Ricardian model

FOURTH SECTION

FOOD ENGINEERING



TECHNOLOGY AND CONTROL IN WINE INDUSTRY
PRINCIPLES AND METHODS FOR CONSERVATION
OF FOODSTUFFS
MILK TECHNOLOGY
TECHNOLOGY OF MEAT AND MEAT PRODUCTS
TECHNOLOGY AND CONTROL IN THE BREWING
INDUSTRY AND DISTILLATES
QUALITY FOOD OF ANIMAL ORIGIN
QUALITY FOOD OF PLANT ORIGIN
MANAGEMENT OF FOOD QUALITY
FOOD MICROBIOLOGY

PLENARY SESSION

**MURARIU Otilia Cristina, ROBU Teodor, TROFIN Alina,
BREZEANU Creola**

UASVM Iasi, Romania

Cercetări privind caracterizarea fizico-chimică a unor genotipuri ameliorate pentru specia *Lycopersicon esculentum* obținute în sistem ecologic ❖ Research on the physico-chemical characterization of improved genotypes for the *Lycopersicon esculentum* species obtained in the ecological system

Currently, worldwide, horticultural producers and processors are concerned to obtain high quality organic products in conditions of economic profitability. The main aim of the research is to highlight the physico - chemical characteristics of some improved genotypes from the species *Lycopersicon esculentum* obtained in ecological system in the experimental field within USAMV Iași in 2019. Thus, the aim was to highlight some qualitative parameters, respectively: titratable acidity, pH value, total dry matter content, soluble dry matter, vitamin C, carotene and lycopene. The biological material was represented by 37 improved tomato genotypes in order to ensure competitive horticultural techniques. The 37 genotypes of *Lycopersicon esculentum* showed an average value of the total dry matter content of $7.07 \pm 0.5\%$, showing an oscillating amplitude of the lower delimited values of 4.64% (G223) and 17.91% (G265). The average pH value was 4.44 with limits that fell within the range of variation [4.15 - 4.85]. The content of vitamin C ranged between 14 mg / 100 g and 29 mg / 100 g. Other components with antioxidant value that have been shown in important proportions are

represented by carotenes (2.36 - 21.22 mg / 100 g) lycopene (3.01 - 33.77 mg / 100 g).

Key words: tomatoes, chemical composition, carotenes, lycopene **RAȚU**

Roxana Nicoleta, USTUROI Marius Giorgi

UASVM Iasi, Romania

Contribuții la cunoașterea fluxului de producție a brânzeturilor cu pastă opărită din cadrul atelierului de microproducție USAMV Iași ❖ Contributions to the knowledge of the production flow of cheese with paste scamped from the UASVM Iasi microproduction workshop

The dairy industry in our country is in full development, characterized by the construction of new factories, the reuse of old factories, increasing production capacity and the introduction of modern technological processes. Through this paper we aimed to perform a qualitative analysis of raw milk that is processed in the "Milk Processing Workshop" USAMV - Iasi and an assortment of cheese with scalded pasta - cheese, obtained in this processing unit ; also, the monitoring of the technological stages that were the basis of the cheese processing was taken into account. The quality of the raw material as well as of the finished product was analyzed in terms of sensory, physico-chemical and microbiological indices. Regarding the raw material, the average values obtained from the analyzes indicated values of $4.17 \pm 0.01\%$ for the fat content and $3.34 \pm 0.02\%$ for the protein content. For the finished product, the score obtained from the sensory analysis showed a score of 18.56 points, placing it in the quality class "VERY GOOD". From a physico-chemical point of view, several indices were analyzed, the average values obtained for each being within the quality standards. Therefore, we can say that the proper functioning of the equipment and the superior quality of the products obtained in the processing workshop obtained with the help of students from USAMV-Iasi obliges us to recommend processing a larger quantity of milk and marketing the products obtained.

Key words: milk, quality, processing, technology

SANDU Adnana-Gabriela, MURARIU Otilia Cristina

UASVM Iasi, Romania

Cercetări privind influența conservării prin crioanabioză asupra calității unor produse horticoale ❖ Research regarding the influence of conservation by freezing over the quality of some horticulture products

Vegetables bring better quality into human life through their various nutrients. Nutritional value of the frozen products can be overstated many conditions such as: maturity and harvesting methods, transportation and storage but also pretreatment conditions before freezing. The new technology of minimal manufacturing of the food compete with industrial freezing which is the most satisfying approach in order to maintain a long period of time the quality of the items. The main purpose of the study is to identify the differences between the frozen products that are used as samples (*broccoli*, *parsley leaf*, *carrot*) utilizing two technologies: industrial and home based technology. The study followed the qualitative modification of the

vegetables after had been kept for several days in the freezer and how the vegetal samples changed once applying the industrial and home based freezing technology. The products were measure by applying sensorial evaluation which showed that the vegetables freezed using the industrial method had higher outcomes than the ones freezed at home. The phisical and chemical analysis revealed that there are no major diffrences between the industrial and by home technology. Therefore, deep freezing revealed tthe following advantages: dropping temperature below 0°C guaranteed preservation of the product for longer periods of time, most of the biochemical reactions being stoped as a result and the growth of the microorganism as well.

Key words: freezing, quality, horticulture products

ZĂPODEANU Cezara-Valentina¹, CÂRLESCU Petru-Marian², ARSENOAIA Vlad-Nicolae¹, ȚENU Ioan¹

¹"Gheorghe Asachi" Technical University, Iași

²UASVM Iasi, Romania

Influența procesului de umectare în sistemul convențional asupra indicilor calitativi la grâul pentru morărit ❖ Influence of the wetting process in the conventional system on the qualitative indices of wheat for milling

The wheat conditioning determines a series of transformations of the mechano-structural and biochemical properties of the grains. Proper wetting of the wheat grain on the outside succeeds in the peeling process in removing the upper layers of its coating without water entering the endosperm, so that in the end high quality flours will be obtained. In this study, two influencing factors were followed: the temperature in the grain mass and the rest time of grains after wetting, finally obtaining a multifactorial experience with 72 experimental variants. The experiments, performed in the present paper, revealed a close connection between the rest time of grains and their humidity after the hydrothermal treatment. Also, the three temperature ranges (10°C - 15°C, 15°C - 20°C and 20°C - 25°C) of the cereal mass for which the study was performed, had a direct influence on the water speed penetration from the outside of the grains to the inside. By establishing individually the optimal conditioning recipe for each batch of wheat with different characteristics, the wetting period is significantly reduced in the technological process of preparing wheat grains for milling.

Key words: milling, wetting process, wheat

ARSENOAIA Vlad Nicolae¹, CÂRLESCU Petru¹, BĂETU Marius¹, ZĂPODEANU Cezara², ȚENU Ioan¹

¹UASVM Iasi, Romania

²"Gheorghe Asachi" Technical University, Iași

Influenta variatiei parametrilor asupra procesului de uscare a semintelor de porumb ❖ The influence of the variation of parameters on the corn drying work process

For the proper progression of the work process for cereal drying it is necessary that the distribution of the termic agent should be uniform and steady through the

product layer, so that the variation of the product's humidity and temperature could be similar in all the layer's spots. The purpose of this paper is to obtain a uniform distribution of heat in the product along with a close variation of its humidity on the layer's thickness. In order to achieve those proposed, corn seeds with humidities between 16-25% were subjected successively to be dried, in three adjoining cells with a total thickness of 150 mm. To fulfill the objective, there was an installation designed and built for dehydration of cereal seeds in laboratory conditions. By varying the speed and the temperature of the termic agent, were studied a total of 80 experimental variants. During the research, was monitored the influence of the structural and functional parameters of the installation for dehydration on the variation of humidity. Results: The results of the experimental researches highlight the conversely proportional variation of moisture in the three layers while increasing the drying agent's speed and temperature. Values of layers humidities have varied evenly for temperatures up to 60 °C. In the present research work, we demonstrated that with decreasing humidity the porosity increases in the product layer, the drying agent speed increases, the drying agent temperature decreases, and the drying agent humidity increases.

Key words: corn, drying, parameters

POSTOLACHE Alina Narcisa¹, POP Cecilia², ZAHARIA Roxana¹, LĂPUȘNEANU Dragoș Mihai¹, CIOBANU Marius Mihai¹

¹Dancu Cattle Breeding Research and Development Station - Iasi, Romania

²UASVM Iasi, Romania

Prevenirea fraudelor alimentare ca instrument activ în industria de abatorizare a cărnii de pasăre ❖ Food fraud prevention as an active tool in meat industry: a case study of poultry slaughterhouse

Worldwide latest food fraud incidents have emphasized the need to reinforce food fraud prevention across the global supply chain, which again is essential not just to protect public health, but also to regain weakened consumer trust in foods, in an economic context where entrepreneurs and regulators acknowledge that confidence is the cornerstone of efficient and productive economies. Unfortunately, current food safety and quality management systems were not initially intended to prevent fraud. Prevention of food fraud involves a particular approach: it must take into account vulnerability assessments and formulate a food fraud mitigation plan, that needs to be continuously updated, being correlated with national and international context on this subject and with the fact food fraud typically appears when the opportunity and the motivation of food crime are strong and the probability of being detected as well as the penalties are minimal. The central objective of this paper was to develop a functional analysis tool starting with a pre-existing "NSF Fraud Security Model" version, designed to support the large reputable food retailers and authorities in the prediction of potential for fraudulent activity in a variety of products. This case study, focused on three key strategic elements: the prediction, prevention and management of the food fraud mitigation plan in accordance with Guidelines for Implementation of the GFSI Recognised Schemes. The outcome of this project is a functioning prototype, a concept built over the past 2 years via

collaborative sessions with project team members and tested for input from industry and regulatory representatives. This analysis provides a framework for evaluating the role of science and technology in identification, mitigation, and then prevention.

Key words: fraud, adulteration, risk mitigation plan

ENACHE Laura, PÎRCĂLABU Liliana, FÎCIU Lidia, RADU Bogdan Vasile

Valea Calugareasca Research and Development Institute for Viticulture and Vinification, Romania

Caracterizarea anului de recoltă și a calității unor vinuri roșii de Valea Calugărească în funcție de potențialul tehnologic și fenolic al soiurilor

❖ Characterization of the harvest year and the quality of red wines from Valea Calugăreasca depending of the technological and phenolic potential of the varieties

The study was conducted during 2014–2018 period and the main objective was to define the quality level of the varieties for grapes of Cabernet Sauvignon and Fetească neagră wine, according to the characteristics of the harvest year. The harvest year 2017, was evidenced by the highest value of the absolute maximum air temperature in august, of 38.2°C and the frequency of temperatures higher than the critical threshold was 24%. The pluviometrical regime in 2018 year registered a deficit in august and September with 35,6 mm, respectively 49,6 mm, compared to the average of 1987-2017. The grape harvest was recorded earlier on average with 12 days in the Cabernet Sauvignon variety and with 14 days in the Fetească neagră variety, compared to the multiannual average. During the years of study, harvesting of grapes from the Cabernet Sauvignon variety was made between September 17th and October 6th, and that of the grapes from the Fetească neagră variety during September 17-28. The dynamics of grape ripening was very fast in the harvest year 2014, fast in the years 2015 and 2016, slow in 2017 and 2018. In the 2014 harvest year for the Cabernet Sauvignon variety, the phenolic maturity of the grapes was assessed as good for all determined analytical parameters. Grapes from the Cabernet Sauvignon variety are well formed, with a percentage of normally developed berries; the skin of the grapes is in a high proportion, high in anthocyanins; small-medium grains, thick skin of the grapes. Cabernet Sauvignon wine was appreciated, compared to the average of 1990-1999, with a very good alcoholic concentration of 12.6% vol. alc. in 2016 and 12.8% vol alc. in the years 2017 and 2018. The wine from the Feteasca neagră variety was appreciated as being extractive, with a high alcohol concentration of over 13% vol. alc., a medium acidity, intensely colored.

Key words: variety, phenolic maturity, technological potential, quality level

POSTER SESSION

ROPCIUC Sorina, PRISACARU Ancuța Elena

"Stefan cel Mare" University Suceava, Romania

Proprietăți senzoriale a brânzei obținute prin coagulare enzimatică vegetală ❖ Sensory properties of cheese obtained by vegetable enzymatic coagulation

The aim of this study was the sensory characterization of soft cheese obtained exclusively by coagulation with vegetable proteases. Raw cow's milk was purchased from grocery stores and the enzymes were used in the form of aqueous extracts from plant parts. The plants from which the plant proteases came were: fig (*Ficus carica* L.), thistle (*Onopordum acanthium* L.) and artichoke (*Cynara scolymus* L.) The fundamental idea is that the coagulation of milk with plant proteases in the form of raw or purified extracts has been known for centuries in many parts of the world. These enzymes are an alternative to veal curd, which has limited availability and a higher price. They are found in almost all types of plant tissue and can be obtained from natural sources or in vitro cultivation. The soft cheese samples were obtained and analyzed in the laboratories of the Faculty of Food Engineering. The enzymatic extracts were obtained from the latex of the green plant and the thistle and artichoke extracts were obtained by extraction from dried vegetable parts. The soft cheese samples were analyzed by a team of tasters who assessed the sensory characteristics through a scoring scale (1-10 points). The characteristics were analyzed and appreciated: smell, aroma, taste, elasticity, creaminess, texture. The results were statistically correlated and were represented in graphs for the analysis of the main components.

Key words: milk coagulation, plant proteases, enzymes, sensory quality

CÂRLESCU Petru Marian, ȚAPU Andreea Mădălina, BĂETU Marius, ȚENU Ioan

UASVM Iași, Romania

Influența procesului de uscare asupra parametrilor fizici la mere ❖ The influence of the drying apple process on physical parameters

Dried fruits are an alternative in times when fresh fruit is missing from the market, and the consumption of dried fruit is constantly increasing due to the increase in demand. In order to ensure the best possible quality of dried fruits, in the last decades several studies have been carried out on the factors that influence the quality of dried fruits. Among the factors imported with influence on the quality of dried fruits are the drying temperature, the drying time and the pretreatments suffered by the fruit before drying. Among the fruits that are suitable for drying are apples, which in Romania occupy the first place along with plums with an average production of 505 thousand tons per year. The physical transformations suffered by apples in the drying process are complex, but they have been quantified in this paper, following a series of changes in mass, size and color. Also, in order to observe the changes in the internal structure of the dried apple tissues, a series of

determinations of the rehydration capacity of dried apples were performed. In this work was carried out the convective drying of apples of the variety *Frumosul de Voinești*, obtaining a reduction of the mass by 80% for the drying at a final humidity of 15%, of the specific mass by 57.7%, of the color index by 86.4%, and the size per unit area by 30.1%.

Key words: dry, apple, physical parameters

PÎRCĂLABU Liliana, ION Marian, TUDOR Georgeta, COSTACHE Irina

Valea Calugareasca Research and Development Institute for Viticulture and Vinification, Romania

Încadrarea în arealul viticol Valea Calugărească a soiurilor de viță de vie pentru struguri de masă și vin în contextul schimbărilor climatice
❖ The integration of vine varieties for table and wine grapes into wine-growing Valea Calugăreasca in the context of climate change

Climate change are a reality today and a challenge because the effects need to be evaluated and identified over time. Although it was acclimatized over times in different viticultural climates, grapevine is a plant which has its optimal limits in physiological and metabolic meaning. The researches were carried out in the Valea Călugărească viticultural center within seven viticultural plantations with the varieties Olivia, Negru aromat, Mamaia, Fetească neagră 4 VI, Columna, Grasa de Cotnari 4 Pt and Muscat Adda 5 Pt. In the last 30 years, the climate has changed in the sense that the thermal regime has increased on the background of an unevenly distributed and deficient pluviometric regime, during the vegetation period of the vine. The vegetation period (April) begins with higher average temperatures than the multiannual average (12.6°C compared to 11.2°C) and a high water regime (74.8 l/square meter compared to 52.0 l/square meter), compared to the multiannual averages. There were registered, also, years with hot summers which significantly influenced the grapevine. During hot summers, vine phenology has changed in that way in which the period between two phenophases was shortened greatly. Also, grapevine evolved under conditions of heat and hydric stress.

Key words: grapevine, climatic changes, phenology, phenophases

TUDOR Georgeta, PÎRCĂLABU Liliana

Valea Calugareasca Research and Development Institute for Viticulture and Vinification, Romania

Evaluarea potențialului de producție și calitate al soiurilor muscat ottonel și cabernet sauvignon în relație cu factorii climatici în podgoria Dealu Mare
❖ Evaluation of the production and quality potential of Muscat Ottonel and Cabernet Sauvignon varieties in relation to climatic factors in Dealu Mare vineyard

The varieties taken into study were Muscat Ottonel and Cabernet Sauvignon, part of the basic assortment for the production of quality wines, typically for Dealu Mare vineyard, which are very valuable in view of the oenological aspect. The experimental results obtained showed that under the ecoclimatic conditions specific to 2019 year, characterized by a high heliothermic regime, on the background of low water resources, especially during the veraison-ripening period of the grapes. Under conditions of water stress (precipitation reduced by 40.8 mm compared to

the normal value of 124.9 mm), the ripeness of the grapes was slow, the growth rate of the berry weight being 1.28 g/day (Muscat Ottonel) and 0.93 g/ day (Cabernet Sauvignon) and sugar accumulation of 1.59 g/l/day (Muscat Ottonel) and 1.00 g/l/day (Cabernet Sauvignon). The total acidity of the must had very low values, 5.8 g/l tartaric acid in the Muscat Ottonel variety and 6.5 g/l in the Cabernet Sauvignon variety, which resulted in a large increase of the glucoacidimetric index, far exceeding the optimal value required for the production of wines with a high degree of quality and typicality.

Key words: water stress, heliothermic, water resources, glucoacidimetric index

MURARIU Otilia Cristina, IRIMIA Liviu Mihai

UASVM Iasi, Romania

Influența intervalului de păstrare asupra calității merelor depozitate în condiții controlate ❖ The influence of the storage interval on quality of the apple stored under controlled storage condition

Apples, fruits that are characterized by taste qualities, nutritional, prophylactic and therapeutic value can be consumed in fresh condition for a long time when are stored under suitable conditions. Thus, it was aimed to identify the main organoleptic and physico-chemical changes on the apples stored within the Cerasus Grup Cotnari deposit by collecting samples represented by six apples varieties (Golden Reinders, Golden Delicious, Gala, Jonared, Idared și Braeburn) in two different intervals, respectively: November 2018 and January 2019. In terms of weight losses, it was noted that these ranged between the minimum value of 5,8% for Gala variety and maximum of 15% for Golden Reinders variety. The value of the firmness decreases, the differences between the two collecting samples periods being between 0,7 kgF/cm² (for Jonared variety) and a significant difference of 1,9 kgF/cm² for Braeburn variety. Compared to the reference values that indicate an adequate storage at the values of firmness between 5 to 7 kgF/cm², it evidences indicates the urgency of the removal of the Braeburn variety from storage to marketing, which has a firmness value of 5,7 kgF/cm² in January. The pH values were within the reference limits between 3,6 – 5 in both quality control intervals. There was a slight decrease on the pH values for all the varieties analyzed, an aspect closely correlated with the increase of the percentage of sugars by a 1% as a result of the hydrolysis of the starch and its transformation into reducing carbohydrates during storage compared with the values obtain for the sampling from November. The results obtain for the vitamin C content for samples collected in November indicate a fall in the reference values (7 – 12 mg/100 g) for all varieties analyzed excepting the Golden Reiders variety which is lower (5,28 mg/100 g). Most varieties evidence a decrease on vitamin C content by 2 mg/100 g in January, excepting the Golden Reinders and Gala varieties, who maintain their values constant. The results of the organoleptic and phytosanitary evaluation, pH values, iodine test as well as weight losses and firmness values have shown a major importance during the valorification of the stored fruits because they can indicate exactly the optimal moment for marketing in terms of economic efficiency.

Key words: apple quality, controlled storage condition, vitamin C

LIPȘA Florin Daniel, GAFENCU Andrei, ȚÎMPĂU Alina, ȘENDREA Mădălina

UASVM Iasi, Romania

Evaluarea florei microbiene asociate cu paste instant și condimentele însoțitoare ❖ Assessment of bacteria and fungi associated with the instant noodles and accompanying seasoning packets

Instant noodles and the accompanying seasonings have gained popularity because of its convenience and affordability among young population in most country of the World. In this study. The microbial quality (bacteria and fungi) of three different brands of noodles (designated as A, B and C) with their accompanying seasonings commonly marketed and consumed in Romania were investigated. The samples were serially diluted and poured in Petri plates. One gram of each brand of noodles and seasonings was aseptically transferred into 9 ml of sterile distilled water. Potato dextrose agar (PDA) in different compositions (classic, with streptomycin and rose-bengal stain) were the media used in this research. The least microbial load was obtained by heating samples at 100°C for 10 min. Sample B had the highest bacterial count of 16×10^3 cfu/g for cold noodles, and also the highest count of 6.6×10^3 cfu/g for hot noodles. For the seasonings, the total bacterial count varied from 6×10^3 cfu/g (sample A) to 33×10^3 cfu/g (sample B). The total fungal count of all samples was slightly higher than that of the bacterial counts. Microbial analysis showed the presence of Gram positive bacteria as predominant bacteria type (e.g. *Bacillus* spp), while *Aspergillus*, *Rhizopus*, *Penicillium* were the three isolated genera of fungi. *Penicillium* was the most frequently isolated genera of fungi in case of all brands of noodles.