UNIVERSITY OF CRAIOVA
FACULTY OF AGRONOMY

ESNA
EUROPEAN SOCIETY FOR NEW METHODS IN AGRICULTURAL RESEARCH

PROGRAMME
&
BOOK OF ABSTRACTS

47th CONFERENCE OF ESNA -EUROPEAN SOCIETY FOR NEW METHODS IN AGRICULTURAL RESEARCH

"AGRICULTURE, CADASTRE, SILVICULTURE, FOOD-SCIENCE AND TECHNOLOGIES "
And
14th ANNUAL MEETING
"DURABLE AGRICULTURE –AGRICULTURE OF THE FUTURE"

27st - 29th September 2018, CRAIOVA, ROMANIA

PARTNERS: ***ConsAgro Craiova***
"OLTENIEI" Museum, Craiova
BAIA DE FIER Townhall

Dear Colleagues,

On behalf of the ESNA Committee and Local organizing committee it is our pleasure to invite you to participate in the 47-th Annual Meeting of our Society to be held in Craiova, Romania. The host of the ESNA meeting will be the Faculty of Agronomy – University of Craiova.

Craiova, Romania's 6 th largest city and capital of Dolj County, is situated near the east bank of Jiu river, in central Oltenia. It is a longstanding political center, and is located at approximately equal distances from the Southern Carpathians (north) and Danube River (south). Craiova is the chief commercial city west of Bucharest and the most important city of Oltenia Region. The city prospered as a regional trading centre despite an earthquake in 1790, a plague in 1795, and a Turkish assault in 1802 during which it was burned.

The Faculty of Agronomy at the University of Craiova is one of the oldest institutions of higher education in Romania, over time is concerned with ensuring an effective education, oriented society useful specialization. Currently, the Faculty of Agronomy in Craiova is a modern educational institution which carries out all forms of higher education.

The University of Craiova was founded within the university center system in Romania in the second half of the 20th century, being, chronologically, the fifth university in the country, following the ones in Iasi, Bucharest, Cluj-Napoca, and Timisoara.

The efforts to set up a university centre in the heart of the region of Oltenia were completed by the passing of the Law no. 138/April 25, 1947, thus permitting the founding and organization of the University of Craiova and its ephors.

The first higher education institutions in Craiova, organized after the passing of the 1947 law, were: The Faculty of Agronomy, in 1947; The Agronomic Institute, in 1948; The Technical Institute, in 1951; the 3-Year Pedagogical Institute, in 1959. All these institutes constituted the University of Craiova, according to the Decision of the Ministers Council, no. 894/August 27, 1965 (published in the Official Bulletin no. 2 of the Socialist Republic of Romania, dated September 10, 1965).

Currently, UCV is a comprehensive institution, made up of 12 faculties, 34 departments, out of which 3 are autonomous and the others are subordinate to faculties, 37 research centres and 3 research institutes. The infrastructure of UCV is adequate (1 main building, 5 campuses, 12 halls of residence, more than 300 lecture theatres and seminar rooms, 255 laboratories, 1 university library and 14 individual libraries, 4 R&D units, 1 university club, etc.; qualified staff (946 teaching staff members and 215 non-teaching staff members, and 796 administrative and maintenance staff members assuring the quality of the services provided for students (17,052) and for society.

In order to improve the education process, a special interest was laid upon the reformation of the higher education in accordance with the European Union regulations and the development of the cooperation and collaboration with other academic institutions in the country and abroad, within the European and extra-European area.

We hope we will all have a memorable and scientifically stimulating meeting in Craiova and we look forward to meeting you here in September 2018.

Welcome to Craiova, Romania!

<u>Conference Chairmans</u>:

Prof. dr. eng. Aurel CĂLINA
Vice-Rector, University of Craiova

Prof. dr. eng. Vlado LIČINA
President of ESNA, University of Belgrade

Prof. dr. eng. Tudor ALEXANDRU
Dean, Faculty of Agronomy, Craiova

Prof. assoc. dr. Mariana NICULESCU
Vice-Dean, Faculty of Agronomy, Craiova

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WHAT IS ESNA? WHO ARE ESNA'S PARTICIPANTS?

The European Society for New Methods in Agricultural Research (ESNA) is an international society established in Wageningen (The Netherlands) in 1969 with the aims of exchanging ideas and techniques to promote the advancement of agricultural sciences. The original scope - the coordination of research in the application of nuclear techniques in agriculture – has gradually changed and now the Society also covers aspects of environment protection and the application of new methods and biotechnology in agricultural research. The Society organizes annual meetings in various European countries and the scientific programme is devoted to fundamental and applied issues from the mentioned areas *burned.*

ESNA AND *"DURABLE AGRICULTURE – AGRICULTURE OF THE FUTURE"* MEETING
WORKING GROUPS

WG 1 PLANT SCIENCES

Application of new methods in plant biotechnology:

Advanced breeding, genotyping and propagation methods;
Plant biochemistry; Plant rhizosphere; Phytoremediation;
Plant physiology and molecular biology; Proteomic, genomic, metabolomics of plants and microrganisms and related topice; Plant cultivation; Fundamentally Disciplines and Environment.

WG 2 SOIL SCIENCES

New methods and application in soil science:

Plant nutrition /including microbial aspects; Use of stable and radioactive isotope techniques; Behaviour of pollutants in soil-plant system;
Soil-microbiology; soil quality and health and related topice.

WG 3 ANIMAL & FOOD SCIENCES

New methods and application in food/feed and animal sciences in sustainable agroecosystems:

Food preservation and safety food/feed and waste irradiation, incl. legal aspects
Climate change; Animal physiology, endocrinology, reproduction, metabolism, pathology, genetics, radiobiology; Technology; pest control in agriculture; disturbances of nutrient cycling; Technological aspects of agroecosystem sustainability;
Science of sustainability; technological and ecological aspects of waste recycling;
Technical aspects related to spatial variability; bioremediation and related topice.

WG 4 AGROBIODIVERSITY AND FORESTRY

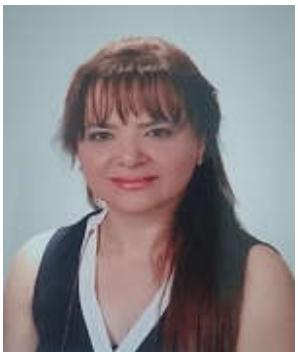
Agrobiodiversity and climate change; Invasive plants a problem for agriculture
The biodiversity of the aromatic, tinctorial and medicinal plants; Agrobiocultural diversity;
Key factors and ecological functions agrobiodiversity;
Agroforestry; Landscape ecology; Agriculture and Forest ecosystems functions;
Agriculture and Forest Policy, Economics; Natural hazards and risk management;
Forest and agriculture ecosystems; Temperate and Boreal Silviculture;
Forest Biodiversity (in Plant Taxonomy, Mycology, or Soil Microbiology)
Ecology and silviculture of oak, beech, spruce, fir, accacia and pine;
Restoration of degraded sites; Silviculture and management of threatened and endangered tree species; Silviculture for production of edible fruits;
Forest management; Forest history and traditional knowledge; Forest Habitats and forest restoration survey;The Power of Science to Halt Deforestation; Wood Science
Forests and Water for Cities;
Silvology - Redefining the Biological Science for the Study of Forests; Forest and Society.

WG5 - CADASTRE, AGRICULTURE MECHANIZATION AND MANAGEMENT

GENERAL PROGRAMME
27th-29th SEPTEMBER 2018, Craiova, ROMANIA

Date	Event	Location
27.IX.2018	**Registration (09.00-10.00)**	**Faculty of Agronomy (19 Libertătii street)**
	Opening Ceremony and Cultural moment (10.00-10.30)	**Aula "Alexandru Buia" - Faculty of Agronomy (19 Libertății street)** **A bit of culture "Romanian traditional dances**
	Coffee break (10.30-11.00)	
	Plenary Session (11.00-13.30)	**Aula "Alexandru Buia" - Faculty of Agronomy** **Plenary Session-Invited Speakers:** **➢ Prof. dr. eng. Menković NEBOJŠA UNIVERSITY OF BELGRADE, FACULTY OF AGRICULTURE, SERBIA** **➢ Assoc. Prof. Dr. Aysun ŞENER ADANA SCIENCE AND TECHNOLOGY UNIVERSITY, FACULTY OF ENGINEERING, TURKEY** **➢ Assist. Prof. Dr. Marcin W. LIS UNIVERSITY OF AGRICULTURE IN KRAKOW, DEPARTMENT OF VETERINARY, ANIMAL REPRODUCTION AND WELFARE, POLAND** **➢ Assoc. Prof. Dr. Nesrin ÖRÇEN EGE UNIVERSITY, AGRICULTURAL FACULTY, IZMIR, TURKEY** **➢ Prof. dr. eng. Markovic NEBOJŠA, UNIVERSITY OF BELGRADE, FACULTY OF AGRICULTURE, SERBIA**
	Lunch (13.30-14.30)	**Faculty of Agronomy**
	Working Groups Sessions (14.30-17.00)	**Faculty of Agronomy (Room L114- WG 1, 2 and Aula "Alexandru Buia"(WG 3 ,4, 5)**
	Coffee break (17.00-17.30) **Poster Session (17.30-18.30)**	**Faculty of Agronomy**
	Gala dinner (19.00-24.00)	**Faculty of Agronomy ,,University House,, Restaurant**
28.IX.2018	**Tourist visit (09.00-23.00)**	**Trip to the North of Oltenia:** **"Dintr-un lemn" Monastery,** **"The Women's Cave" (Baia de Fier)** **Traditional lunch "Viitorul" Restaurant, Baia de Fier**
29.IX.2018	**Coffee break (09.30-10.00)** **Working Group Sessions (10.00-11.30)**	**Faculty of Agronomy Aula "Alexandru Buia"**
	Committee Meeting (10.00-10.30)	**Room 111, Faculty of Agronomy**
	Closing Ceremony (11.30-12.00)	**Faculty of Agronomy, Aula "Alexandru Buia"**

Keynote Speakers:

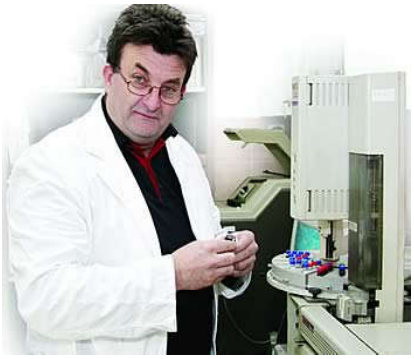


Assoc. Prof. Dr.
Aysun ŞENER

ADANA SCIENCE AND TECHNOLOGY UNIVERSITY, FACULTY OF ENGINEERING, TURKEY

Assoc. Prof. Dr.
Nesrin ÖRÇEN

EGE UNIVERSITY, AGRICULTURAL FACULTY, IZMIR, TURKEY

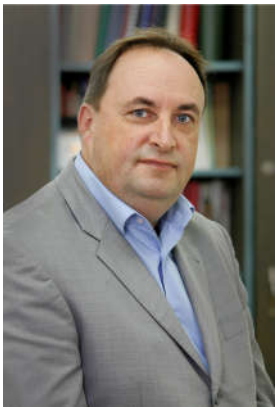


Prof. dr. eng.
Menković NEBOJŠA

UNIVERSITY OF BELGRADE, INSTITUTE FOR THE STUDY OF MEDICINAL HERBS „DR JOSIF

Assist. Prof. Dr.
Marcin W. LIS

UNIVERSITY OF AGRICULTURE IN KRAKOW, DEPARTMENT OF VETERINARY, ANIMAL REPRODUCTION AND WELFARE,



Prof. dr. eng.
Markovic NEBOJŠA,

UNIVERSITY OF BELGRADE, FACULTY OF AGRICULTURE, SERBIA

PLENARY SESSION

Chairmans:
Doc. dr. ZORAN PRŽIĆ, Faculty of Agriculture, University of Belgrade, Serbia
Junior Lecturer. dr. eng. MARIUS MILUȚ, Faculty of Agronomy, University of Craiova

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BIOACTIVE PEPTIDES AND HEALTH EFFECTS

M. ÜMIT ÜNAL [1]*, AYSUN ŞENER [2]

1 University of Cukurova, Faculty of Agriculture, Department of Food Engineering, Balcali 01330 Adana, Turkey
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Bioactive peptides are organic substances formed by amino acids joined by covalent bonds known as amide or peptide bonds. Although some bioactive peptides exist free in its natural source, the vast majority of known bioactive peptides are encrypted in the structure of the parent proteins and are released mainly by enzymatic processes.

Some bioactive peptides have been prepared by chemical synthesis. Bioactive peptides attributed to different health effects, including antimicrobial properties, blood pressure-lowering (ACE inhibitory) effects, cholesterol-lowering ability, antithrombotic and antioxidant activities, opioid activities, enhancement of mineral absorption and/or bioavailability, cytomodulatory and immunomodulatory effects, antiobesity, and anti-genotoxic activity. The growing interest in bioactive peptides has incentivized the scientific community and the food industry to exploring the development of new food additives and functional products based on these peptides. The present review highlights the recent findings on the identification, bioassays, and use of bioactive peptides, as well as their potential use as food additives and in the development of functional products.

CLIMATE CHANGE AND AGRICULTURAL REFLECTIONS: NEW APPROACHES FOR ENVIRONMENTAL SUSTAINABILITY

NESRIN ORCEN*

***Department of Field Crops, Faculty of Agriculture, Ege University, Bornova, Izmir, 35100, Turkey

The relationship of human to the environment has existed since the time of the first human civilization. As the community developed, the negative impact of people on the other members of the ecosystem was greater. The values of some pollutant parameters reached a high level at an alarming rate. Air, soil, water pollution has become a global problem. Heavy metals as pollutants have been the focus of researchers, expressed more often than ever before in previous years. With a large number of toxic effects, heavy metals present the presence of plant species that are already living in contaminated environments. Monitoring of heavy metals is an important issue because toxicants and their accumulation have vital preservation for the ecosystem. Contaminated soils can be reduced and restore their function using physical, chemical and biological techniques. Physical and chemical methods are very expensive and often cause irreversible changes, thus destroying biological diversity. Sustainable intensification means producing more food from the same area of land while reducing the environmental impacts, under social and economic beneficial conditions.

Biological recovery of contaminated soil is an effective way to reduce health risks for both humans and the ecosystem. Numerous studies have led to the development of the first thought of plants to improve the environment and to use different pollutants in contaminated environments as promising technologies that promise environmental protection under the heading "Phytoremediation". This technology consists of reducing contaminant in contaminated soil, water or air concentrations. Plants have the ability to store, degrade, or remove pesticides, metals, pesticides, explosives and crude oils. In this review, practices and technologies for sustainable intensification are discussed. Especially the article discusses methods for the use and application of plants for the recovery of soil, especially polluted by heavy metals and other pollutants..

QUALITATIVE AND QUANTITATIVE ANALYSIS OF RED WINES ANTHOCYAN

MARKOVIĆ, N.[1a], MENKOVIĆ, N.[2]
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The most important quality parameters colored wines are analyzed in paper, with special reference to qualitative and quantitative anthocyanins content. Anthocyanins possess a diverse biological activity such as antioxidant, antiinflammatory, anticancer, cardio protective, antiatherogenic, as well as activity in reducing diabetic risk and prevention of cognitive functional disorders. Basis of analyzes is related to typified varietal (monocomponent) and "Cuve" (mixed) wines made in Greece-on Atonic Peninsula-Hilandar monastery and Serbia, in comparison with wines of similar composition from other viticultural world areas.

Hilandar wines are distinguished with high anthocyanins content, both in mixed combination and monocomponent wines-from 101.4 mg/L for Savino Polje wine from 2010 to 781.3 mg/L for "Cabernet Fran" wine from 2016. The most important anthocyanins in Hilandar wines are malvidins. Younger wines contain from 151.9 mg/L to 671.0 mg/L malvidin ingredients. In addition to malvidins, these wines also contain significant amounts of peonidine and vitizine A. In sugar and total acids content in must, are superior clones Merlo variety-181, 345, 346, in which sugar content in must varied in range from 23.8-31.6 %, while total acids content waried in range from 6.1-9.2 g/L in some years. For Cabernet Fran, clones 210 and 214 are complemented by yield and grape quality (sugar content in must range from 22,8-27,4 %, total acids 5,8-8,7 g/L). For Cabernet Sauvignon clones 15, 169 and 337 sugar content ranged from 23.6-28.2 %, and total acidity was 5.5-7.8 g/l.

Such sugar: acid ratio in listed varieties resulted alcohol content of 13.5-15.5 vol.% and a number of varietal characteristics complemented with minerality, specific fragrances and other indicators of superior wines.

„OMNE VIVUM EX OVO" - AN UNOBVIOUS APPLICATIONS OF AVIAN EGGS AND EMBRYOS

MARCIN W. LIS[1], JERZY W. NIEDZIÓŁKA[1], KRZYSZTOF PAWLAK1, MAGDALENA TRELA[1], KAROLINA TRZECIAK[1], ANDRZEJ SECHMAN[2], MAŁGORZATA DŻUGAN[3], AGNIESZKA K. GRZEGORZEWSKA[2], AGNIESZKA LISOWSKA-LIS[4] AND BARBARA TOMBARKIEWICZ[1]

(1) Department of Veterinary, Animal Reproduction and Welfare,
(2) Department of Animal Physiology and Endocrinology, University of Agriculture in Krakow, Poland;
(3) Department of Chemistry and Food Toxicology, University of Rzeszów;
(4) Polytechnic Institute, State Higher Vocational School in Tarnow, Poland

In ovo development is free of the ontogenic biochemical effect of the mother, which is the case with in utero development in mammals. More over avian embryo is easy to breed, inexpensive and relatively resistant to "*in ovo*" manipulation and may be useful model in different biological studies.

The avian egg and embryo are a recognized model (*in ovo* model) in embryological, genetic, endocrinological, microbiological, immunological, toxicological, pharmacological and medical research. In this context it is worth noting the high usefulness of this model in experiments on virulence of the different strains of *Staphylococcus aureus*. In addition, the in ovo method can be used to simulate environmental pollution state under laboratory conditions. This model used to prove that dioxins are a potential modulator of steroidogenesis in birds and may strongly disturb the synthesis and secretion of sex steroid hormones during the embryonic period. More over chick embryo is indicators of heavy metals pollution, e.g. cadmium ions accumulate mostly in the kidneys, liver and gonads, disturb antioxidant system, cardiac work and induce myocarditis. With other side established that zinc (II) ions may weaken the embryotoxic effects of cadmium and prevent a decrease in the antioxidant potential of chicken blood plasma induced by this heavy metal.

However, some reservation is needed because, due to phylogenetic differences, the results obtained with the in ovo model should be treated with caution with reference to mammals and humans.

ORAL PRESENTATION

Working Groups No. 1, 2
Room - L114

Chairmans:
Doc. dr. ZORAN PRŽIĆ, Faculty of Agriculture, Univerrsity of Belgrade, Serbia
Junior Lecturer dr. eng. MARIU MILUȚ, Faculty of Agronomy, University of Craiova

Working Group No. 1
PLANT SCIENCES

EFFECTS OF PLANT BIOREGULATORS ON THINNING OF YOUNG APPLE TREES CULTIVAR 'GOLDEN DELICIOUS REINDERS'

BOBAN DJORDJEVIĆ, DEJAN DJUROVIĆ, GORDAN ZEC
University of Belgrade, Faculty of Agriculture, b.djordjevic@agrif.bg.ac.rs

ABSTRACT

For several decades, the use of intensive orchards has been proposed to improve profitability and yield, notably of early cropping, in apple orchards. Fruit yield is primarily depends of two components: fruit number and fruit size. Crop load, defined as the number of fruits per tree, has a significant impact on both fruit quality and tree physiology. Thinning of flowers or fruitlets is the most important technique in apple growing practice to improve fruit quality, increase return bloom and reduce biennial cropping. The highest crop loud per trees had control trees and trees thinning with NAA, 11.1 and 10.6 fruit cm^{-2} TCSA respectively. Increasing of crop loud had significantly influence to return blooming. In third leaf of apple only trees thinning with metamitron prevent the occurrence of biennial cropping. The highest percentage of marketable fruits had trees thinning with metamitron and manual (more than 60 %).

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RESEARCH ON CORN HYBRIDS BEHAVIOR UNDER THE APPLICATION OF NEW TECHNOLOGICAL CONCEPTS IN OSMANCEA-CONSTANTA AREA

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ABSTRACT

The emergence of new growing concepts aiming to achieve the biological yield potential of crops, soil conservation and the increase in economic efficiency, had also an echo in the agriculture of Dobrogea area. Farmers were involved in finding the best solutions to achieve these goals. Research conducted at SC Micul Agricultor SRL farm, located in Osmancea, Constanta County is an example in this direction. This research aimed to establish the corn hybrids best adapted to the climatic and pedologic conditions of the area, and the most efficient soil tillage system and to optimize crop fertilization.

For this purpose, the behavior of Mas 40 F, Dartona and P 9911 corn hybrids was studied under conventional (plowing) and minimum soil tillage (tiger and disk) for the following fertilization levels: unfertilized, $N_{90}P_{40}K_{40}$ and $N_{90}P_{40}K_{40}$ + Greenstart - 25 kg/ha.

The best results were obtained when using tiger to perform basic soil tillage and fertilizing with $N_{90}P_{40}K_{40}$ + 25 kg/ha Greenstart. For this variant, all hybrids had the highest yields ranging from 13.56 to 13.93 t/ha.

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DEVELOPMENT OF PARASITE BROOMRAPE (OROBANCHE CUMANA WALLR.) IN BRAILA COUNTY IN YEARS 2016 AND 2017

ANTON F.G. (1, 2), PĂCUREANU JOIŢA M. (1) AND RÎŞNOVEANU L. (3, 4)
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ABSTRACT

In the last two years broomrape become more and more agresive in favorable area for sunflower crop. Because of that, we must tested in every year in natural and artificial condition many genotype of sunflower to identifying new source of resistance at races of

broomrape present in this area. We tested 20 genotypes created at NARDI Fundulea, in artificial conditions, in the greenhouse in 2017 (broomrape collected from Brăila County, Chişcani locality) and under natural conditions in 2017 on the field of ARDS Braila (Braila County, Chişcani locality).

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HISTO-ANATOMICAL AND CHROMATOGRAPHIC RESEARCHES ON ZIZIPHORA CAPITATA L. (LAMIACEAE) SPECIES

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ABSTRACT

Concerning Ziziphora capitata L. (Lamiaceae) species, the paper presents the histo-anatomical analysis of root, aboveground stem and leaf, along with the chromatographic investigations of the polyphenols in the aerial parts. Caffeic acid (126.2 µg/mL) and rutin (171.3 µg/mL) were identified in the 20% methanolic extract of Ziziphorae capitatae herba, by thin-layer chromatography coupled with photodensitometry.

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YIELD AND NUTRITIONAL QUALITY OF DIFFERENT MAIZE HYBRIDS UNDER DROUGHT STRESS

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ABSTRACT

Oltenia from Romania is one of the most important agricultural regions but and one of the most prone regions to extreme weather phenomena i.e. drought and heat. In this region, direct selection for yield is not adequate because of the variable environment. Therefore, the use of different selection procedure and traits in addition to yield has been suggested. In this study we examined the response of different maize hybrids to drought stress conditions, in terms of grain yield traits and nutritional quality.

The trials were conducted at Agricultural Research and Development Station Simnic, in the central part of Oltenia, under field conditions in 2016 (without drought) and 2017 (with drought). The grain yield decreased by 50.0 %, the 1 000-grain weight by 11.2 % and the shelling percentage by 1.5 %, but the protein percentage increased by 10.1 %, under drought stress. The 1 000-grain weight was identified as a reliable trait for selecting for drought tolerance in maize. Screening for drought tolerance using ranking method

discriminated hybrids PO 216, PO 412 and DK 4590 as the most drought tolerant hybrids. In addition to, results of this study showed that among drought tolerance indices STI, SSI, MP, GMP and SDI can be used as the most suitable indices for screening drought tolerant hybrids. It can be concluded that the identification of tolerant hybrids to drought stress conditions is crucial for maize breeding programs, considering the climate changes.

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THE INFLUENCE OF WHEAT AND MAIZE CULTURES ON ROTATION AND MONOCULTURE ON THE ENZYMATIC COMPONENTS OF THE SOIL

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ABSTRACT

In order to better characterize the soil's vitality and to assess the fertility level, pedo-enzymatic tests are used along with biotic and / or chemical analyzes. Pedo-enzymatic activities are evaluated in the laboratory to determine the potentials of a soil to release the ammonium and phosphorus required for soil and plant micropopulation nutrition. Pedo-enzymatic processes (pedo-phosphatase, pedo-amidase) are ongoing, to the extent that environmental conditions are favorable. The soil samples taken in the study were harvested from the Am (0-20 cm) horizon of the N_0P_{70} fertilized variant, from the following crops: wheat after soybean crops of a three-year rotation, maize coming from a 4-year field temporarely outside the crop rotation, and from monocultures of wheat and maize. From the data analyzed as a result of this study it results that the crop rotation influences the pedo-enzymatic components of the soil. Total pedo-phosphatase activity in wheat and maize cultivation (rotating) was superior, the results being in the value group compared to the total pedo-phosphatase activity of the soil under the wheat and maize monocultures where the result of the analyzes indicated a much lower, being in b. The total soil pedo-amidase activity of wheat cultivated with maize as a precursor plant was superior, the result being in the a.

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RESEARCHING RESULTS ON THE FERTILIZER APPLYING ON SOWN PASTURES ON LUVISOIL FROM ARDS SIMNIC

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ABSTRACT

The sown pastures that are made of valuable grasses and leguminous fodder species have a high productive potential which can only be capitalized by proper fertilization.

The mineral fertilizers are applied on a large scale due to their easy absorbtion by plants because they are soluble and immediate effect. The nitrogen fertilizers applied on several rates substantially contributes to the obtaining of high harvests of fodder of good quality ensuring a better rescheduling of production.

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THE EXPERIMENTAL RESULTS REGARDING THE INFLUENCE OF THE COMPOST AND OF THE AMENDAMENTS TO THE TEMPORARY MEADOWS FROM SCDA ȘIMNIC

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ABSTRACT

Both the simple mixture of graminaceae and pulverize and the complex react very weel both to the organic fertilization and the chimical one with nitrogen.
The amount of the crop obtained in the mictures with organic fertilization, with oxidat between 1,3 – 2,1 t/m d.s. at the simple mixture and 1,8 – 2,6 t/ha d.s. in the case of the complex mixture of nitrogen. The nitrogenous, too has substantially contributed to the encreasing of the crop, ensuaring a growth of over 3,6 t/ha d.s. (N_{120}) at the simple mixture, respectively over 5,4 t/ha d.s. (N_{120}) at the complex mixture.

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RESEARCH ON THE INFLUENCE OF SOIL WORKS ON COWPEA CULTIVATED UNDER ECOPEDOLOGICAL CONDITIONS IN SOUTHERN OLTENIA

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ABSTRACT

The results obtained in the cowpea culture, studied during 2016-2018 in the conditions of the sandy soils, highlight the importance of germination bed preparation and the size of the nutrition space on the growth and fructification processes of the plant. Analyzing the soil moisture dynamics during the plant vegetation, there is a better conservation of water in the soil, when was performed by plowing at a depth of 22-25 cm + disking to a depth of 10-15 cm, the soil moisture being within the limits of 6.98-16.8%. The best results were recorded by sowing 25 germinable seeds / m^2 in a germination bed prepared by the plowing at a depth of 22-25 cm + disking of 10-15 cm deep (9.75 pods / plant, 8.85 grains / pod, 2483.5 kg / ha). This version was recorded the lowest level of weed (scoring on the EWRS scale with note 2.0, in the branching phase and 1.66, in the flowering phase

***

INFLUENCE OF IRRIGATION AND FERTILIZATION ON MAIZE YIELD IN DOBROGEA (SARICHIOI, TULCEA)

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ABSTRACT

The paper presents the average results of the research conducted in the agricultural years 2015/2016 and 2016/2017, analyzing the influence of irrigation methods and volumes on maize yield obtained for different fertilization levels in Sarichioi, Tulcea (Dobrogea area). Split plot method was used for the field design, in order to establish the optimum interaction of technological factors in terms of the yield obtained in the climatic and soil conditions of Dobrogea area. The following factors were studied: factor A - irrigation regime with: a_1 - Dripping 300m^3/ha (Ct), a_2 - Dripping 600m^3/ha, a_3 - Sprinkling 600m^3/ha, a_4 - Sprinkling 1200 m^3/ha; Factor B – fertilization with three graduations: b_1 - $N_{120}P_{60,}$ b_2 - $N_{180}P_{60,}$ b_3 - $N_{180}P_{90}$; Factor C – maize hybrid: c_1 - DKC4717, c_2 - P0023. Yield varied from 12.1 t/ha (DKC4717, fertilized $N_{120}P_{60,}$ Dripping 300 m^3/ha) to 15.1 t/ha (P0023, fertilizer $N_{180}P_{90,}$ Sprinkling 1200 m^3/ha), both irrigation regime and fertilization lead to statistically assured yield growths.

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RESEARCH ON THE PRESENCE OF THE OROBANCHE CUMANA PARASITIC PLANT IN SUNFLOWER CULTURE

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ABSTRACT

The economic importance of sunflower in Braila County has been the main motivation in the study of the Orobanche cumana attack and the concern to offer a wide range of hybrids to the growers in this area and to provide information on their reaction under similar conditions to those analyzed. The research was carried out in Braila county in the years 2015-2016. Six sunflower hybrids were studied. Observations were made on the frequency, intensity and degree of attack at the end of flowering and before harvesting were determined by counting the parasite on each plant. Formula for the degree of attack: F × I / 100 (%), where F = attack frequency (%) I = attack intensity (%). The number of sunflower plants per plot, plant height, calatidian diameter, number of broomrape attack plants, average number of broomrape stems per host plant and plot production at harvest were recorded. The results of the research on the parasitic-host plant system studied under natural infestation conditions depend on the homogeneity of experimental infestation on the field and on the studied genetic material. Infestation with Orobanche cumana was lifted during the two years of research.

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STRUCTURE AND REPRESENTATION OF AROMATIC COMPOUNDS OF GRAPE BRANDY PRODUCED FROM MUSCAT TABLE GRAPEVINE (VITIS VINIFERA L.) CULTIVARS

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ABSTRACT

A combined gas chromatographic-mass spectrometric (GC/MS) method was used in this study to detect volatile components of eight samples of grape brandy produced from Muscat table grapevine (Vitis vinifera L.) cultivars. The gas chromatographic-mass spectrometric analysis of the extracts resulted in the identification of 155 components including 64 esters, 35 terpenes, 17 acids, 8 alcohols, 3 aldehydes, 8 ketones, 14 hydrocarbons (alkanes, alkenes and alkenols), 5 acetals and 1 heptanoic acid anhydride. Ethyl esters of C_8 – C_{18} fatty acids and terpenic compounds were considerably more abundant in all grape brandy samples as compared to the other volatile compounds identified.

QUALITATIVE AND QUANTITATIVE ANALYSIS OF RED WINES ANTHOCYAN

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ABSTRACT

The most important quality parameters of colored wines are analyzed in the paper, with special reference to qualitative and quantitative anthocyanins content. Anthocyanins possess a diverse biological activity such as antioxidant, anti-inflammatory, anticancer, cardio protective, anti-atherogenic, as well as activity in reducing diabetic risk and prevention of cognitive functional disorders. Basis of analyzes is related to typified varietal (monocomponent) and "Cuvée" (mixed) wines made in Greece - on Mount Athos - at the Hilandar monastery and in Serbia, in comparison with wines of similar composition from other viticultural world areas.

Wines of Hilandar are distinguished with high anthocyanins content, both in mixed combination and monocomponent wines-from 101.4 mg/L for the Savino Polje wine of 2010, to 781.3 mg/L for the Cabernet Fran varietal wine from 2016. The most important anthocyanins in wines of Hilandar are malvidins. Younger wines contain from 151.9 mg/L to 671.0 mg/L malvidin ingredients. In addition to malvidins, these wines also contain a significant amounts of peonidine and vitizine A. Concerning a content of sugar and total acidity in must, superior clones of Merlo variety are -181, 345, 346, in which sugar content in must varying in range from 23.8-31.6 %, while total acids content varying in range from 6.1-9.2 g/L in some vintages. Cabernet Fran clones 210 and 214 are complemented by yield and grape quality (a sugar content in must is ranges from 22,8-27,4 %, total acidity 5,8-8,7 g/L). For Cabernet Sauvignon clones 15, 169 and 337 sugar content ranged from 23.6-28.2 %, and total acidity was 5.5-7.8 g/l.

Such sugar to acid ratio in listed varieties resulted with alcohol content of 13.5-15.5 vol. % and with a number of varietal characteristics complemented with minerality, specific fragrances and other indicators of superior wines.

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HISTO-ANATOMICAL AND CHROMATOGRAPHIC RESEARCHES ON CAMPANULA PERSICIFOLIA L. (CAMPANULACEAE) SPECIES

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ABSTRACT

The paper presents the histo-anatomical researches on root, rhizome, aboveground stem and leaf of Campanula persicifolia L. (Campanulaceae) species, together with the

thin-layer chromatography analysis of the polyphenols content of Campanulae persicifoliae herba. Chlorogenic acid (108.6 µg/mL) was identified in the 20 % methanolic extract of the aerial parts.

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ADVANTAGES OF POLYPLOID PLANTS IN CLIMATE CHANGE OR EXTREME HABITATS ACCORDING TO ITS DIPLOIDS

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Polyploid organisms are those containing more than two paired sets of chromosomes. Polyploidy is occurs in many plants and some animal species but is particularly widespread in the angiosperms. Polyploidy has attract attention researchers for almost a century and today it well knows that polyploidy has had a role in the evolution of all angiosperms. Despite its widespread occurrence, the direct effect of polyploidy on evolutionary success of a species is still largely unclear. Over the years, many hypotheses have been proposed to put functionality into increasing content of a duplicated genome. These hypotheses include the fact that doubling of the genome provides significant advantages over a polyploid, and these advantages allow polypoids to develop in environments that challenge the diploid progenitors of polyploidies Genome doubling, or polyploidy, is a major factor accounting for duplicate genes found in most eukaryotic genomes. Polyploidy has considerable effects on duplicate gene expression, including silencing and up- or downregulation of one of the duplicated genes. Genome doubling confers distinct advantages to a polyploid and that these advantages allow polyploids to thrive in environments that pose challenges to the polyploid's diploid progenitors. Studies of naturally polyploid plants have shown that polyploids have advantages over diploids in terms of stress resistance. This article revisits these long-standing questions and explores how the integration of recent genomic developments with ecological, physiological and evolutionary perspectives has contributed to addressing unresolved problems about the role of polyploidy. Although unsatisfactory, the current conclusion has to be that despite significant progress, there still isn't enough information to unequivocally answer many unresolved questions about cause and effect of polyploidy on evolutionary success of a species. In the future, it will make more direct connections between the effects of polyploidy on the genome and the responses this condition elicits from the organism living in its natural environment. Such information will assist crop breeders and lead to an enhanced understanding of polyploid-generated angiosperm diversity. Ploidy can be an important criterion for selecting plant populations for use in genetic rescue, restoration and revegetation projects, including in habitats affected by climate change.

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THE REACTION OF SOME GRAMINACEAE AND PERENNIAL VEGETABLES FODDER IN ORDER TO CREATE SOME TEMPORARY MEADOWS IN THE CENTRAL PART OF OLTENIA

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ABSTRACT

The perennial fodder plants represent a main (important) source of food for animals.

The results obtained in our country led to the cration of new variety and hybrids whit a high crop potential and the creation of differentiate technologies on large ecological zones.

In this way, on the luvosoil from SCDA Șimnic – in order to enlarge the temporary meadows in crop – there have been obtained good results at the species: Dactylis glomerata, Arrhenatherum elatius, Bromus inermis, Medicago sativa, Lotus corniculatus, Onobrichis viciifolia

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ORAL PRESENTATION

Working Groups No. 3, 4, 5
AULA "Alexandru Buia,,

Chairmans:
Prof. assoc. dr. JENICA CĂLINA, University of Craiova, Faculty of Agronomy
Lecturer dr. ELENA BONCIU, University of Craiova, Faculty of Agronomy

Working Group No. 3
ANIMAL & FOOD SCIENCES

TRITICALE'S CONTAMINATION WITH DEOXYNIVALENOL UNDER THE GEOGRAPHICAL AND AGRO-CLIMATIC CONDITIONS OF ROMANIA, IN 2012 - 2014

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ABSTRACT

Introduction: Triticale (x*Triticosecale* Wittmack) is a cereal obtained by crossing wheat with rye to improve production and biochemical composition from parental organisms, and to cultivate regions with unfavourable conditions (arid, semiarid, wet or acidic soils) [1,2]. Romania has been growing triticale since 1997 and, globally, it belongs to the group III (<= 104,945.0 to) of producers [3]. Romania's climate is continental temperate with multiple influences [4,5], and the forecast of climate change has shown a temperature rise of 2-5^{0}C and a drop in precipitation especially during summer [6]. Extreme weather events (drought in 2012, 2013; abundant rainfall in 2014) that affected the productivity, biochemical and biological quality of triticale crops were recorded during 2012-2014. *The research aim* was to evaluate the contamination level of triticale crops with deoxynivalenol (DON) mycotoxin produced by *Fusarium* sp. in the period 2012-2014, depending on the geographic and agro-climatic factors of the regions.

Materials and Methods: 236 samples were officially sampled from triticale crops 2012-2014 and analysed by ELISA method (Ridascreen®DON kit, R-Biopharm; Sunrise reader, Tecan). Agro-meteorological factors (temperature, precipitation, water reserve in soil) were recorded by the official meteorological network of Romania (MAWS stations with Ceres wheat and DSSAT v3.5 software) during 09.2011-08.2014. The geographic coordinates of the counties were determined by Google maps, aridity indices (de Martonne, climatic water deficit) were established according to Paltineanu *et al*. [4], and the dominant soil types (chernozem, phaeozem, luvisol) have been established according to Soil Atlas of Europe [7]. The data were collected in a database and statistically analysed by SPSS v.23 software.

Results: Extreme weather events caused very significant differences (Sig.=0.000) between contamination levels of triticale with DON, the highest contamination being in

rainy year 2014 (<18.5…3593 µg/kg, average 662 µg/kg), followed by dry years, but wet in critical period, 2013 (<18.5...3378 µg/kg, mean 278 µg/kg) and 2012 (<18.5...3106 µg/kg, mean 205 µg/kg). In all years, triticale contamination with DON was higher in the north-west Transilvania region (45-47^{0}N, 22-24^{0}E), which is characterised by lower temperature, rainfall and water reserve in soil with higher values, and luvisols with low aridity indices. In the very rainy year 2014, the highest contamination with DON was recorded in the regions of Moldavia and the Southern Hilly Area, irrespective of soil types (luvisol, chernozem) and aridity indices of regions.

Conclusions: The triticale contamination with DON is more frequent and higher in the north-west of Romania, with a wet temperate continental climate. However, very wet years favour triticale contamination with DON, regardless of the geographic position and agro-climatic factors characteristic of cultivation areas. Taking into account the predicted climate change for Romania, it may be thought that the extension of triticale crops will be favoured.

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QUALITY CONTROL FOR ROMANIAN MEAT PRODUCTS

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ABSTRACT

Food production, trade and consumption are now globalised. This provides multiple opportunities for harmful bacteria, viruses, parasites or chemical substances to enter the food chain and contaminate food prior to consumption. Food safety may be viewed as a cross-cutting issue and all have a role to play, food producers, manufacturers, distributors and traders are responsible for the food they produce and trade. All products must be safe as possible from pathogens and other contaminants. This study presents an objective picture opposite the meat products quality control. The study results meet european and national regulations and standards for meat products.

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IONIZING RADIATION EMITTED BY FOOD CONTAINERS - HISTORIC OBJECTS FROM THE EARLY TWENTIETH CENTURY, MADE OF WHITE AND GREEN GLASS (COLLECTIONS IN TARNOW, POLAND)

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ABSTRACT

The discovery of radioactivity caused a fascination with the phenomenon of radiation. At the beginning of the twentieth century, even food containers made of glass with uranium oxide, were popular. Radioactive usable and decorative glassware are found today in museum collections as well as in home collections. Ionizing radiation is a carcinogen. The

subject of the research were glass from the early twentieth century. The levels of alpha, beta and gamma radiation were examined. The levels of radiation emitted by vintage glasses: white wine glasses, green wine glasses, a decorative dish made of green glass were measured. The control group was contemporary wine glasses made of white glass. The measurement results show a higher level of ionizing radiation emitted by vintage objects such as: a decorative dish, white wine glasses, and green wine glasses. Historic objects show a higher level of alpha, beta and gamma radiation than contemporary glass. The highest level of radiation applies to historical objects: wine glasses in green. The level of beta radiation emitted by them was about 100 times greater than in the control. Glass products from the early twentieth century made of white glass and green glass can be a source of harmful ionizing radiation, especially beta radiation. Objects should be protected, beta particle emissions to the environment should be reduced.

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PRELIMINARY STUDY FOR USING OF TRIDEMENTION SILICON LAYER SAVE THE QUALITY OF POULTRY EGGS DURING STORAGE

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ABSTRACT

The hatchability of the eggs stored for more than 7-10 days rapidly decreased. This phenomenon is caused by evaporation, CO_2 diffusion (pH increase) and gradual disintegration of internal eggs' structure. It seems that covering the egg's shell with a layer that has antibacterial properties and inhibits the diffusion of gas, can improve the quality of the egg and extend its lifespan.

The aim of the study was to examine the influence of silicon layer on changes of eggs' parameters during storage.

An aqueous 1 % solution of organically modified trisiloxane (OTS) and a sol-gel precursor mixture was used for covering the chicken egg shells (Ross 308, egg weight, EW 63±7.4 g,) and Pekin duck egg shells (EW 85±6.8 g). The eggs were divided into equal groups (n=30 eggs/group) and treated accordingly, i.e.: chicken eggs sprayed with OTS (Ch-OTS) and untreated group (control; Ch-C), while duck eggs: untreated (control, D-C); washed by aqueous 1 % solution of KMnO4 (D-W) and washed and sprayed with OTS (D-W-OTS). The eggs were stored at 17°C and RH =70% and egg quality (EW; dimeter and height of yolk (YW, YD, YH) and albumen (AW, AD, AH) and albumen pH); were determined at 7., 10., 14., 17., 20. and 27. day of storing.

No effect of OTS application on chick egg quality was observed. However, the relative weight loss in duck eggs control group on 27th day of storing was lower for about 2% in comparison to D-W and D-W-OTS groups ($P \leq 0.05$). Moreover, spraying the duck egg shells with OTS reduced the lowering of pH on 7th day of storing in comparison to D-W group, but such effect was not observed later on.

To sum up, the aqueous 1% solution of a mixture of organically modified trisiloxane does not improve significantly the quality of chicken or ducks eggs. However, the positive effect of higher solution of OTS cannot be excluded. Therefore, the studies on the use of tridemention silicon during eggs storage should be continued.

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EFFECTS OF NITROPHENOL ADMINISTRATION ON CHICKEN OVARIAN STEROIDOGENESIS

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ABSTRACT

The present study was designed to investigate *in vivo* effects of 4-nitrophenol (PNP) and 3-methyl-4-nitrophenol (PNMC) on sex steroids, i.e. progesterone (P4), testosterone (T) and estradiol (E2) concentrations in blood plasma of the laying hen and on mRNA expression of main steroidogenic factors, i.e. steroidogenic acute regulatory protein (*StAR*), 3β-hydroxysteroid dehydrogenase (*HSD3B*) and aromatase P450 (*CYP19A1*) in ovarian follicles. The experiment was carried out on Hy-Line Brown hens at 28 weeks of age which were kept in individual cages, under a 14L:10D lighting schedule, with free access to food and water. Birds were divided into three groups: control (n=10; injected with vehicle), and PNP (n=10) and PNMC (n=10) which were injected (s.c.) for 6 days with PNP or PNMC at doses of 10 mg/kg b.wt. Nitrophenols were administered 2 hours after ovulation and following blood sampling which was performed before the first injection (t=”0”) and on day 2, 4, 5 and 6 of the experiment. Ovarian steroids in plasma samples were determined by RIA method. Hens were decapitated on day 6, and white (1-4 mm; WF) and yellowish (4-8 mm; YF) prehierarchical follicles, and theca and granulosa layers of preovulatory (F3<F2<F1) follicles were isolated from the ovary. They were kept in RNA-later at -80 °C till determination of gene expression by real-time qPCR. Results were statistically evaluated by means of two-way ANOVA followed by Duncan’s multiple range test at $p < 0.05$. PNP and PNMC significantly decreased plasma steroid hormone concentrations. For instance, on day 6 of the experiment, the PNP and PNMC treatment reduced P4 and E2 concentrations in chicken plasma by 26 and 49%, and 29 and 60 %, respectively ($p<0.05$-0.01); moreover, PNP diminished T plasma concentration by 49 % ($p<0.05$). Both nitrophenols decreased ($p < 0.05$-0.01) the *StAR* mRNA levels in WF, YF and in the theca layer of F3-F1 follicles (maximally by 80% in the theca layer of F1; $p < 0.01$). No effect of these nitrophenols on *StAR* gene expression was noticed in the granulosa of F3-F1. PNP and PNMC administration reduced mRNA levels of *HSD3B* only in the theca layer of F3-F1 follicles ($p < 0.05$; PNMC: maximally by 55 % in F2). Moreover, they diminished *CYP19A1* mRNA levels in the WF and YF follicles ($p < 0.05$; both by about 50% in YF). Results of this *in vivo* experiment reveal that PNP and PNMC are strong

inhibitors of the steroidogenesis process in the chicken ovary. *Supported by grant of National Science Centre, Poland: UMO-2014/15/B/NZ9/01986.*

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ORGANIC FARMS - IMPORTANT SOURCES FOR DEVELOPING OF VALUABLE FOOD SUPPLEMENTS

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ABSTRACT

Romania has a great potential in developing systems of working in organic farming. At the same time, there are a number of plants that are very little used to obtain foods with high nutritional density (topinambur, hemp, sorghum). Knowing the active principles of these plants, using environmentally-friendly resources and appropriate organic crop and organic processing technologies . This work paper is part of study which outlines the results of the use of organic farming systems in order to obtain food products (well-balanced electrochemical food products), that are extremely nutritious and also safe for consumers health (by processing with safe, organic raw materials - free of pesticides traces, hormones, antibiotics - and some biological food additives).

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THE EXPECTED IMPACT OF CLIMATE CHANGE ON GRAPE FLAVOR COMPONENTS

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ABSTRACT

Today, thevastmajority of the scientific community admits the reality of climatechange. Climatechange in the Mediterranean region is associated with increased temperature and atmospheric CO_2 and drought. Viticulture is one agricultural sector that has a very close association with climate because th eproduction of fine wineis strongly related with the concept of 'terroir'. The general composition, aroma and phenolic compounds that make up the flavor will be affected by this change.These important factors which strongly affects sensory characteristics of grapesand wines are playing a fundamental role in consumer preferences. The shift in climate and the resulting changes to weather patterns and carbon dioxide levels may cause shifts to grape chemistry and the resulting quality of wine. This study provide some examples of effects of climate change

and growing conditions on grape and consequently wine quality characterstics expressed as flavors.

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BIOLOGICAL ACTIVITIES OF LOQUAT

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ABSTRACT

Eriobotrya japonica belongs to the family Rosaceae and it is also known as loquat. It is not only cultivated for its yellow fruits but also as an ornamental plant in Japan and other Asian countries. Research shows that loquat extracts contain many antioxidants, and different extracts exhibit bioactivity capable of counteracting inflammation, diabetes, cancer, bacterial infection, aging, pain, allergy and other health issues. Bioactive compounds such as phenolics and terpenoids have been isolated and characterized to provide a better understanding of the chemical mechanisms underlying the biological activities of loquat extracts. This review is focused on the medicinal properties reported bioactive compounds identified in different loquat extracts.

Working Group No. 4
AGROBIODIVERSITY AND FORESTRY

CONSIDERATIONS ON ZONING AND MICRO-ZONING OF THE DOLJ COUNTY AREA FOR POTENTIAL FOREST VEGETATION IN THE CONTEXT OF ANTHROPIC CHANGES IN FOREST LANDS AND CLIMATIC CHANGES

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ABSTRACT

The anthropic changes undergone by the forest lands in the Dolj county, to which the current climate changes have added up, have shaped the potential forest vegetation. Anthropic changes of the forest lands through the large-scale works that started in the interwar period by the embankment of the Danube and the Jiu rivers, the building of the dams on the vast surface areas of the Danube meadow, the creation of lakes and ponds and their transformation into cyprinid farms, the building of dams on the Danube and other rivers for water accumulation and their use for power generation, the irrigation of crops and water supply to the population. The development of the irrigation system in the Oltenia Plain on the right bank of the Jiu River and the Sadova-Corabia irrigation system by leveling the vast areas occupied by sand dunes altered the water regime in the soil. All these anthropic improvements have unfortunately been made by the deforestation of vast forest areas, both in the Danube meadow and the mobile sands on the left of the Jiu river. Up to 1990, the complex system of improvements had operated through the combined action of factors involved in the intensive exploitation of the agricultural land. After 1990 the state interventions ceased, the systems were slowly abandoned, the agricultural lands were not intensively cultivated, and the climatic factors impacted heavily on the forest lands and potential forest vegetation. Important changes have occurred in the soil water regime, atmospheric humidity and even the circulation of air masses in the area bordered by the Balkan Mountains and the Oltenia Plain. All of these anthropogenic changes have added to the current and ever more dramatic climate changes in the past decades. Thus the necessity of zoning and microzoning of the potential forest vegetation in the area of the Dolj county emerged. Remedying or even stopping the phenomenon of degradation of stationary factors can be done by the afforestation of these lands and the establishment of protective forest stands.

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AGROSTIS SPECIES PRESENT IN THE "ALEXANDRU BELDIE" HERBARIUM FROM "MARIN DRĂCEA" NATIONAL INSTITUTE FOR RESEARCH AND DEVELOPMENT IN FORESTRY

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ABSTRACT

Well represented within Al. Beldie Herbarium from „Marin Drăcea" National Institute for Research and Development in Forestry, the *Agrostis* Genus stands out through the important number of plates that contain plants representative for this Genus, as well as through the information contained within it. This information relates to the plants' gathering places, covering almost our entire country, and to the renowned specialists that have contributed to the collection's development, gathering or identifying plants belonging to the *Agrostis* Genus.

The present paper summarises and presents the *Agrostis* species present in the Herbarium based on their gathering place and year, as well as after the specialists that has collected them. Furthermore, the most important *Agrostis* species are described based on the abundance from the Herbarium's maps, their rarity or endangerment in the natural environment.

The paper starts with a description of the Herbarium, continuing with presenting the studied material (93 plates that contain 21 *Agrostis* species). The materials and methods used for elaborating the present paper are then presented together with a systematization of plants and the description of the most important ones.

From the *Agrostis* Genus, the Herbarium accommodates a sample of a species that appears in the Red Book of vascular plants from Romania (*Agrostis alpina* Scop.). Furthermore, the Herbarium can also take pride of old plants with an historical value, collected almost 150 years ago (Agrostis maritima DC, 1874, Coulon, France).

In addition, the present paper presents a graphic of gathering periods for the plants belonging to this Genus, followed by a map of their gathering places from Romania.

The conclusions present some important aspects regarding the *Agrostis* species and samples present in the above-mentioned Herbarium.

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APPLICATION OF THE ANALYTIC HIERARCHY PROCESS IN SELECTION OF THE MOST IMPORTANT NON-WOOD FOREST PRODUCTS FOR DOLJ COUNTY

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ABSTRACT

In Romania, non-wood forest products (NWFPs) are mainly represented by wildlife species of hunting interests, fish from the waters included into the forest fund, forest berries, forest seeds, edible mushrooms, medicinal and aromatic plants and resin. The NWFPs belong to their owners with the exception of the first two categories.

The aim of this study was to highlight the most important NWFPs from Dolj County. The analyze model was based on Analytic Hierarchy Process and 19 criteria and 8 alternatives (NWFPs) were used. The processing of the data was done using Expert Choice Desktop software.

The eight selected NWFPs consisted in parasol mushroom, milk-caps, oak seeds, black berries, berries of common hawthorn, Saint John's wort, European hare and common quail. According to the AHP results, the most important non-wood forest product for Dolj County is the European hare, while the less important one is Saint John' worth. The results of this study represent an important contribution to the evaluation of the potential of the NWFPs for Dolj County with a special view on their harvesting, marketing and other linked activities.

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FOREST SOILS FROM VÂLCEA COUNTY

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ABSTRACT

The total surface occupied by forests in Vâlcea County is of 271.435 ha. From this surface, 132.482 hectares are forest fund, from which 93.640 hectares are public state property and 38.842 hectares are private forest fund property (www.rosilva.ro).

In this presentation is describe the chemical characteristics of soils from Vâlcea County's forest fund (using accredited national and international methods). As a total, 726 soil profiles and 1947 pedo-genetic horizons were analyzed.

Based on the results of the analyzed analyzes, the following general conclusions were found: Forest soils from Vâlcea County belong preponderantly to the Cambisol and

Luvisol classes. The most representative soils from this area are: eutric cambisol 32 %, dystric cambisol 27 %, luvisol (16 %), preluvisol (15 %), entic podzol (5 %).

Forest soils from this County are acid, ranging from the ones that register a very low pH (prepozol, dystric cambisol), to moderately acid ones (eutric cambisol, luvisol).

Based on the degree of saturation in basis, oligobasic soils (entic podzol) are encountered together with oligomesobasic ones (dystric cambisol), and mesobasic soils (luvisol, preluvisol).

The total cationic exchange capacity is high (eutric cambisol, dystric cambisol) or very high (luvisol, preluvisol, entic podzol).

Soils range from moderately humiferous (eutric cambisol, luvisol, preluvisol), to intensely humiferous (dystric cambisol, entic podzol).

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THE CHARACTERISTICS OF ALCHEMILLA GENRE PLANTS PRESENT IN ALEXANDRU BELDIE HERBARIUM FROM I.N.C.D.S. BUCHAREST

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ABSTRACT

Numerous Alchemilla species are collected in the Alexandru Beldie Herbarium from I.N.C.D.S. "Marin Drăcea" from Bucharest. The plants are kept in the original portfolio in drawers of 30 modules.The study material was composed of the 90 plates were grouped by species, harvest year, the place where they were harvested and by the specialist who harvested them. A*chemilla* is a plant from the *Rosales* Order, *Rosaceae* family (with the common name "lady's mantle". Based on the results, the following general conclusions were found: In "Alexandru Beldie" Herbarium, which contains more than 40,000 plates, 90 plates belong to the *Alchemilla* genus. The plants from this herbarium were gathered between 1854 and 1971, reaching a maximum in the period 1930-1949 and were gathered by renowned Romanian and foreign botanists (Al. Beldie, P. Cretzoiu, C. Georgescu, E. I. Nyarady, A. Haralamb). The plants were gathered from Romanian mountain areas (Bucegi, Ceahlău, Ciucas, Piatra Craiului, Rotnei) or near cities from our country (Cheia, Câmpulung Muscel, Sinaia, Predeal, Auzga, Maneciu, Cluj, Turda), as well as from some European areas (Spain, Hungary, Bulgaria, Switzerland). The plants are in a good conservation degree and are very useful in many research and science domains.

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ECOLOGICAL RECONSTRUCTION THROUGH AFFORESTATION WORKS OF THE JILT DUMP HAVING AN AREA OF 10 HA, LOCATED IN THE MIDDLE BASIN OF JILT RESULTED THROUGH SURFACE MINING

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ABSTRACT

Through the research undertaken on the present subject it aimed the scientific groundwork of the ecological reconstruction of the dump resulted through surface minings located in the middle basin of Jilt and the choice of afforestation technical solutions using the forest vegetation. This scientific groundwork follows the way to achieve the dumps and their current morphology, as well as the mineralogical and particle size, physical, hydrophysical and chemical composition of these dumps, factors underlying the characteristics of the composed technosoils and the choice of the species, formulae and of the afforestation schemata. Also, the groundwork aims the harmonization of the ecological requirements of the used wood species with the dump soil characteristics. The preparation technology of the dumps in order to afforestation is relatively simple and it requires a rest period after the release from the technological changes, to strengthening and stabilization, followed by a microlevelling and then the artificial ingrass on the sectors where it was not naturally installed. To establish the species used in afforestation works and the way of installation of the forest vegetation on the taken dumps, it were taken into account aspects specific to the site conditions. Forest promotes the storage of water on slopes, by preventing the formation of the surface runoffs and of the flood waters, following the heavy rains and the snowmelt, thus counteracting the flood phenomena and soil erosion. The establishment of the forest plantations aims the slope stabilization and the development of some forests with multiple role: the protection of the environment by regulating the climate and the hydrological regime and by creating parks and recreation places of favorable habitats for wildlife and protective role. Outstanding results on afforestation of the Jilt dump presented: sea buckthorn, black locust, poplar and walnut, these species will be used for the stabilization of the future dumps.Less well results presented species of Quercus (sessile oak, Turkey oak, pedunculate oak, red oak), pine, hazel.

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RESEARCH ON HUMUS CONTENT CHANGE ON BOHORELU DUMP, WITHIN THE MINING CARRER SOUTH JILT

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ABSTRACT

The success of the ecological reconstruction of the dumps by plantation of forest species is strongly influenced by the chemical properties of the stockpiled material, that the

content of humus, total nitrogen, flying phosphorus and flying potassium, as well as of the reaction of the soil and of the base saturation degree.In this respect the following is the humus content of the stockpiled material from the soil elevations carried on the Bohoreludump. The analysis of the chemical properties shown in Figure number 1 shows that the content of organic matter (humus) decreases from surface to depth in all analised elevations. In the six secondary profiles on the slopes, the organic matter proportion varies from the very small to small, in the first three elevations and medium in the following two.The total spare of humus and organic matter on the total depth of the 50 cm has values of less than 30 t/ha. Consequently the providing with the total nitrogen is very low in all analisedelevations. On the Bohorelu dumps, both on stabilized and not covered with afforestation works dump surfaces and afforested dumps, were carried on six soil elevations.

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CORYTHUCHA ARCUATA (HEMIPTERA: TINGIDAE) IN RELATIONSHIP WITH ENVIRONMENTAL FACTORS FROM ROMANIA

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Corythucha arcuata Say 1832, also known as oak lace bug, is an invasive insect species of North America. It was raported for the first time in Romania in 2015. Distribution in Romania of that species was been approached in other studies, but their relationthip with environmental factors from our country is inknown. In order to estabilish the relationship between OLB and the environment, during the period 2017-2018, observations were made in three locations. At one location was made intensive monitoring (at 1-3 days). Here were recorded climatic data and was recolted data about density of population of *Corythucha arcuata* at each observation. In the conditon of our observation points, preliminary results show that *Corythucha arcuata* developsthree incomplet generations per year and overwintering in adult stage.It was observed a close relationship between environmental factors (air temperature, humidity and air pressure) and density of population.

Working Group No. 5

CADASTRE, AGRICULTURE MECHANIZATION AND MANAGEMENT

USE OF GNSS TECHNOLOGY IN AGRICULTURE TO IDENTIFY APIA PARCELS

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[3]NV SURVEY

ABSTRACT

This paper presents the use of GNSS technology and its advantages compared to other technologies, as well as certain aspects of measuring technology using artificial satellites for the identification of parcels, in order to fund them through the Agency for Payments and Intervention in Agriculture (APIA).

The use of GNSS technology in agriculture for identification work for APIA, can lead to a fair and expeditious resolution of all existing problems and creates litigation that often blocks the funding and compromises the results in agricultural works and crops. Currently, a program, is being implemented in Romania with the support of the European Union through the Agency for Payments and Intervention in Agriculture (APIA), to identify plots and physical blocks belonging to landowners.

The article also has a study case presenting the identification of the parcel and their positioning using GNSS technology in the National Stereographic Projection System 1970.

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USE REMOTE SENSING IN AGRICULTURE FOR THE STUDY OF SOIL EROSION.

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ABSTRACT

This paper presents the use of remote sensing and its advantages compared to other u, as well as certain aspects of the technology to solve stringent problems in soil erosion study.

Remote sensing is widely used in the study of various events and it offers a much cheaper and more concrete solution to the study and dynamics of soil erosion compared to other methods of investigation.

The article also has a study case in which an area in Cluj County is presented, where the effect of soil erosion is studied by remote sensing.

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STUDY ON SOIL PROCESSING UNDER THE ACTION OF KNIFE – CHISEL WORK ORGANS

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ABSTRACT

Soil processing plays an essential role and its quality depends on a good plant's development. The soil processing process has immediate positive effects by eliminating the compact layer from the surface, good weed control and even pest damage control, increasing the water infiltration rate in the soil and reducing excess water, rapidly stimulating plant growth and development.

Nowadays, the transition from conventional soil works to conservative systems has an important component in the limelight, namely the soil processing. Conservative systems are based ona less intense soil cultivation, carried out by different methods, without turning the furrow and only under conditions of preserving the soil surface of a certain amount of vegetal debris, being considered for this reason ecological protection strategies.

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INNOVATIVE PROCESS FOR SOIL PROCESSING IN PROTECTED GARDENS AND SPACES

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ABSTRACT

This paper aims to present the great advantage of a simple manual tool for soil processing in gardens, experimental fields and protected spaces, the so-called miracle shovel. It is an invention that revolutionized the category of tools for gardening. It has an ingenious, simple design and can be used as a tool that simultaneously performs the fork, shovel and rake functions while simultaneously excavating, grabbing, removing soil weeds, cleaning and smoothing the soil. Thus, this tool was designed not only to ease work, but also to improve work quality and increase work productivity.

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RESEARCHES ON THE OPTIMIZATION OF THE TECHNOLOGY FOR IMPURITIES REMOVAL FROM THE CEREAL AND INDUSTRIAL PLANT MASS FOR ESTABLISHING ECOLOGICAL CROPS

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ABSTRACT

To ensure the maintaining and raising the level of harvested seed biological quality, during the various stages that they go through, in order to obtain the finished product represents a challenge for scientific research in ecological agriculture. The production of seed

and planting material, organic certified, depends to a great extent on the functional quality of seed conditioning equipment and installations, but also on the quality of the staff involved in the production process. Given the importance of knowing the conditioning process of different culture seeds the paper presents an appropriate technology which is based on a seed conditioning installation that combined two principles: counterflow aspiration of product to be processed and separation on cylindrical sieves and the experimental research in the establishment of its optimal operating parameters, with the comparative analysis of equipment performances and showing the advantages of this installation being used by agricultural producers for the production of various type of seed and planting material, organic certified.

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THE INFLUENCE OF HAMMERS' PERIPHERAL SPEED ON THE PERFORMANCE OF THE HAMMER MILLS

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ABSTRACT

Cereal milling is a complex process resulting in a wide variety of particles that differ in size, surface or composition. Ensuring a rational regime regarding the technological process of hammer mills operation, actually refers to the correlation of the indexes to ensure the functioning of the mills at optimal values. The peripheral speed of hammers is one of the decisive factors in the milling process. Speed limitation is determined by fodder resistance, the construction of working parts and their durability. In the paper we study the influence of hammers' peripheral speed on the product subjected to milling, through a series of experiments under exploitation conditions.

***

STUDIES ABOUT THE AUTOMATED CONTROL OF STEAM TEMPERATURE IN THE FORMING MOLD OF THE COMPOUND FEED GRANULES IN VIEW OF ENVIRONMENTAL PROTECTION

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ABSTRACT

The production process of compound feed is a complex one, with activities that involve releasing some dust particles into the atmosphere by grinding cereals and using some steam jets at very high temperatures. For this reason, in compound feed factories must be designed and used working installations with a high degree of mechanization, automation and computerization, with a high productivity level and low specific consumption, whose functioning to be verified by experimental modeling so as to offer a rigorous monitoring of noxes and of the dust eliminated in accordance with the European accepted norms.

Thus, considering the complexity of the technological flow from a compound feed factory (CFF), in this article the thermal parameters of the work installation are being analyzed, in the homogenization and sterilization area of the compound feeds using steam jets at very high temperatures.

In this article are presented the results of the experimental measurements carried out at the critical points of the technological flow for the production of different recipes of compound feed, that attest the advantage of using some automated working installations that function at the optimal designed parameters and at the same time fully comply with the EU requirements related to the protection of the surrounding environment.

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EXPERIMENTAL ANALYSES OF PROCESSES OCCURRING DURING THE STORAGE OF CEREALS IN SILOS OF COMPOUND FEED FACTORIES

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ABSTRACT

The evolution of society and global demographic growth have led to a diversification of people's food needs and, implicitly, increased demand for products from zootechnical farms. Over the last few years, for animal feeds are widely used compound feed obtained in factories by blending cereals with other proteinaceous ingredients and vegetable oils.

In this paper a study is made on the conditions of storage of cereals in the silos of the compound feed factories, considering the fact that exist the possibility to keep them for quite a long period of time.

It also presents an analysis of the factors influencing the stored cereals by carrying out some experimental measurements at different time points on samples taken from different places of the large quantity of grain which exist in the silos of the compound feed factories.

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POSTER PRESENTATION

Chairmans:
Prof. assoc. dr. DORINA BONEA, University of Craiova
Dr. SELIN YABACI KARAOĞLAN, University of Adana Science and Technology

Working Group No. 1
PLANT SCIENCE

DISTURBANCE OF MITOTIC ACTIVITY TO SUNFLOWER UNDER INFLUENCE OF PROPAQUIZAFOP HERBICIDE

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ABSTRACT

Weed control is one of the very important technological stages for sunflower, executed both pre-emergence and post-emergence. However, excessive use of herbicides may have some adverse effects on the normal development of cell division. One of the active substances used post-emergence frequently to sunflower crops is Propaquizafop (commercial name Agil).

In order to determine the mitotic activity to sunflower under the influence of this herbicide, three treatment variants (V1/10 ppm; V2/20 ppm; V3/50 ppm) were performed along with an untreated control. Cytogenetic analysis revealed the mitodepresive effect of the herbicide at the same time with the increased of concentrations; as well as its genotoxic effect, quantified by the occurrence of several types of mitotic anomalies (metaphase and telophase stickiness, ring chromosomes and multinucleated cells).

The results suggest genotoxicity and mutagenic potential of the Propaquizafop herbicide and the need to apply the integrated methods for crops protection to protect the environment and preserve biodiversity.

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EVALUATION OF THE CYTOGENETIC EFFECTS PRODUCED BY BOTRYTIS ALLII FUNGUS TO ALLIUM CEPA

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ABSTRACT

The purpose of this paper was to evaluate the cytological effects produced by *Botrytis allii* fungus (gray rottenness) on the meristematic cells of onion (*Allium cepa*). In case of the samples studied (onion bulbs affected by the disease, together with a healthy

control), the following cytogenetic characteristics were analysed: the mitotic index, the frequency of mitosis phases in the roots apex, the frequency and types of chromosomal aberrations and nuclear abnormalities.

After analysing results were found large differences between samples; thus, the mitotic index decreased from 11.88% for the control to 2.24-4.01% for samples affected by *Botrytis allii*. Also, it has been found the following main types of chromosome aberrations and nuclear abnormalities: sticky and laggard type chromosomes, fragments of chromosomes, as well as cells with nuclear erosion. From this point of view, the frequency of chromosomal aberrations and nuclear abnormalities was significantly higher in the case of variants affected by *Botrytis allii*, compared to the control variant (1.41% for control variant and 10.43-14.74% for variants affected by *Botrytis allii*).

The results show that *Botrytis allii* (gray rottenness) has the ability to cause a large number of mitotic abnormalities to *Allium cepa*, affecting the growth and development of plants. In addition, the cytogenetic effects of infection with *Botrytis allii* can probably be similar to those produced by the action of a mutagenic agent.

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ALLELOPATHIC EFFECT OF SAGE ON GERMINATION AND INITIAL GROWTH OF MAIZE

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ABSTRACT

SALVIA OFFICINALIS *L*. (sage) is a medicinal plant cited for its strong allelopathic effects. This plant is being studied for its pesticidal potential and much less for its biostimulant activities. The development of new biostimulants in the context of sustainable crop management, is necessary. The aim of the study was to determine allelopathic effect of sage on germination and initial growth of maize (*Zea mays* L.) Two experiments were conducted under laboratory conditions to determine effect of cogermination of sage and maize seeds and effect of sage aqueous extracts from fresh and dry sage biomass in concentrations of 5 %, 10% and 20 %, were investigated. Sage seeds in cogermination with maize and aqueous extracts of sage showed not significant effects on germination percentage, but showed significant effects on maize seedlings. The shoot and root length was strongly inhibited by cogermination. On the contrary, shoot length of maize was stimulated by the lowest concentration of extracts (5 %), while it was inhibited by higher concentration (20 %). For the root length, a slight stimulation (not significant) was observed at the 5 % and 10 % concentrations of sage extracts, while it was inhibited by 20 % concentration. It can be concluded that dilute concentrations of sage can be utilized as a natural source (biostimulants) for initial growth of maize.

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EVALUATION OF SEVERAL YIELD TRAITS FOR SOME REGENERANTS OF MOMORDICA CHARANTIA L. UNDER FIELD CONDITIONS

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ABSTRACT

Momordica charantia L. is a valuable medicinal herb used in the treatment of many diseases, especially diabetes. The conditions of *in vitro* cultivation and the passage of specific stages of this technology determine the occurrence at the level of regenerants of some character changes which, although they are epigenetic, are valuable for the productivity of this species. Our research has been aimed the testing in the field crop conditions (three years 2013-2015) of 5 lines of bitter cucumber regenerants (*Momordica charantia* L.) obtained *in vitro*. The obtained results allow us to assert that through the *in vitro* culture it is possible to obtain the variability of certain production characters in the bitter cucumber, which is kept in the descendent and allows their use in order to improve the productive features of this species in the temperate climate zone.

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INFLUENCE OF POTENTILLA REPTANS EXTRACTS ON THE PHYSIOLOGY OF AGROPYRON REPENS PLANTS

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ABSTRACT

During the experiments, the influence of the aqueous extracts obtained from the leaves of *Potentilla reptans* on the physiology of *Agropyron repens* was studied.

Agropyron repens is a plant of spontaneous flora of Romania, growing on cultivated and uncultivated soils and is one of the most harmful plants in agriculture.

In areas where *Potentilla reptans* grows, couch grass growth is inhibited; this demonstrates that this plant can have an allelopatic action on the couch grass.

During these experiments, aqueous extracts from the leaves of *Potentilla reptans* were used in concentrations of 5 g/l, 10 g/l, 15 g/l and 20 g/l. These extracts were used in order to water the *Agropyron repens* plants.

The experiments focused on the intensity of leaf photosynthesis, leaf respiration intensity, transpiration intensity, leaf water content and chlorophyll content.

In the variant with a concentration of 5 g/l, photosynthesis had much lower values, and at 20 g / l the process was reduced by about 50 %.

Regarding the respiration process, there was an increase, but only at high concentrations of the extracts (15 and 20 g/l). At low concentrations, the differences from the control were undetectable.

In the control variant, the intensity of leaf sweat had the lowest value. In the other variants, it has been found to intensify the sweating process in proportion to the increase in the concentration of the extracts.

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AGROBIOLOGICAL CHARACTERISTICS OF SOME NEW ALMOND TREES VARIETIES IN THE SOUTHERN AREA OF THE COUNTRY

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ABSTRACT

Although widely spread and appreciated in many countries for its many uses, this species is unknown to the population of the country. Due to its specific characteristics, it is necessary to cultivate a suitable variety of almond varieties but at the same time to apply modern agrotechnics according to their biological particularities.

A large vigour of almond trees varieties showed the varieties Pomorie, Primorski and Retsou, the rest of the varieties falling into the lower varieties category. The almond varieties behave practically autosterile, with entomophilous pollination, which makes it necessary to provide pollinators. All almond varieties showed a domination of the short fruit formation with different values.

Varieties that recorded higher production values were Pomorie, Primorski and Retsou.

From these main analyzed elements it results that in the southern part of the country, fruits with a special commercial aspect and chemical components specific to the superior valorification, both fresh and industrialized, are obtained.

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VERIFICATION OF BEHAVIOR OF VARIETIES OF PLUM TREES IN TERMS OF PHYSIOLOGICAL ASPECT

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ABSTRACT

In the country there are many areas favorable to the plum species, and the Oltenia area has proved to be an area with particularly favorable climatic conditions. Leaves are the main organ in which photosynthesis, respiration, sweating processes take place. The intensity of the photosynthesis process is influenced by both internal and external factors. The variety and rootstock have a particular influence on the intensity of the photosynthesis process, especially the Miroval rootstock. The varieties that showed greater intensity of photosynthesis were Anna Spath, Diana.

The intensity of the respiration process varies depending on variety, rootstock, and phenophase. The plum varieties grafted on the Miroval rootstock recorded higher values of

the respiration process. Chlorophyll content of the leaves varies with phenophase and the a/b chlorophyll ratio was higher in the phenolphase of intensive growth of stems (CIL).
The leaf carotenoid pigment had a mean value over the vegetation period ranging from 8.68 mg/100 g to the intensive growth of stems (CIL), 9.49 mg/100 g in the slowdown growth of stems (ICL) and 8.88 mg/100 g at the fruit ripening (IPF). In all three phenophases, there is a total content in pigments larger in the case of grafted varieties on the Miroval rootstock, followed by those on the Oteşani 8 and Pixy rootstocks..

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RESEARCHES ON THE INFLUENCE OF THE ROOTSTOCK ON THE GROWTH VIGOUR OF SOME VARIETIES OF PLUM TREE IN THE CENTRAL AREA OF OLTENIA

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ABSTRACT

The plum species presents low requirements for climate and soil and is particularly prevalent in hilly areas, where they occupy field areas unfit for other crops.

The research was carried out between 2015 and 2017 within a plantation set up in 1995. The biological material used in the present paper is represented by three plum varieties (Stanley, Pescăruş and Dâmboviţa) grafted on 4 rootstocks (Oteşani 8, Pixy, Miroval and Roşior văratic).

The paper aims to establish the rootstock's influence on growth vigour in the graft/rootstock biosystem.

From the three varieties studied, the Pescăruş and Dâmboviţa varieties fall into the medium vigour group and the Stanley variety in the low vigour group.

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CHARACTERISTICS ON THE GROWTH MODE OF UNDERGROUND AND OVERGROUND PARTS IN UNTOASĂ BOSC PEAR VARIETY

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ABSTRACT

The pear comes early in production, produces a lot and constantly, ensuring fresh fruit consumption for 8-10 months a year.

The research was carried out during 2014-2016 within a family garden, located 50 km away from Craiova. The biological material is represented by the Untoasă Bosc pear variety grafted on a seed rootstock. The plantation was established in 2000, the trees being led in the form of a stacked palm consisting of 6 structures.

The purpose of the paper is to highlight, during the three years of study, how the pear behaves in the growth process of both the air and the underground part.

The Untoasă Bosc pear variety has a good development of the overground part and the root system is well developed and distributed throughout the depth range studied (0-100 cm), both at a distance of 1 m from the trunk and 2 m from the trunk.

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RESEARCH ON THE EVALUATION OF QUALITY CHARACTERISTICS IN SOME SORGHUM GENOTYPES UNDER THE CONDITIONS SANDY SOILS FROM SOUTHERN OLTENIA

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ABSTRACT

The present paper aims at the behavior of some sorghum genotypes in terms of adaptability to the climatic conditions specific to the sandy soils areas in southern Oltenia, manifested during the testing of the production capacity and its quality.

The quality of grains at sorghum specie is strongly influenced by the genotype, the technology of culture and climatic conditions during the experimentation period.

The best results were obtained from the genotypes: Es Mousson (75.6 Kg/hl hectolitric mass, 31.5 g mass of one thousand grains, 7.4 % moisture, 20.5 % protein, 10.8 % fats), Elan (74.8 kg/hl hectolitric mass, 28.8 g mass of one thousand grains, 5.2 % moisture, 19.2 % protein, 8.9 % fats) and Es Alize (72.4 kg/hl hectolitric mass, 23.9 mass of one thousand grains, 7.8 % moisture, 18.3 % protein, 8.4 % fats). The highest yields were obtained from genotypes Es Shamal (9 646 kg/ha) and Es Foehn (9 421 kg/ha).

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STUDIES ON THE IMPROVEMENT OF GROWING PLANT PROCESS IN LEGUME

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ABSTRACT

The objective of the study is to evaluate the comparative data on the mechanized planting of seedlings, carried out with the rotating distributor plant of nutritious pots compared to the work done with the planer machine with the distributor with flexible discs.

It was followed by the qualitative indices of the work, namely: the rows planted to be as straight as possible, the percentage of the plants, the fixation in the vertical position of the plants, the planting depth to be equal and the constant, the distance between the plants to be uniform and the constant, the distance between rows to be equal.

As a result of the study we found the increase of the qualitative indices of the work in the case of the rotary distributor plant of nutritious pots.

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STUDIES AND RESEARCH ON THE CUPS PLANTING SYSTEM

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ABSTRACT

In the paper is presented the construction and functioning of a mechanism with cups for planting the seedlings obtained in nutritious pots.

It also shows the kinematics and dynamics of the mechanism during the working process.

It also shows how to operate the mechanism, how to adjust the speed, how to adjust the working depth, how to adjust the position of the bowl to the ground, how to adjust the opening moment of the cup, how to adjust the time the cup remains open, the possibilities of adjusting the distance between plants per row, the possibility of changing the cup quickly depending on the size of the pots.

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THE INFLUENCE OF NO TILLAGE TECHNOLOGY ON PLANT HEIGHT, SOIL MOISTURE AND YIELD OF CORN

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ABSTRACT

No tillage technology is the future of field agriculture in the world. In our country, the spreading of this technology was impeded by the fact that researchers and farmers did not understand the role of the mulch layer on yield. Lot of researches unfolded in our country did not accounted this aspect. Our researches began in 2016 and they have emphasized the role of the mulch layer on the overall development of corn plants and, finally, on the yield. The data presented in this article represent determinations of the corn plant height and soil moisture at two dates, 1 of june and 10 of july. These results emphasize the importance of the mulch layer on plants height and on soil moisture. This way, the no till treatment with mulch layer consisting of pea debris has been superior to the classic technology based on plowing. The no till variant without mulch layer, practically, gave no yield.

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OBTAINING A 100 % NATURIST PRODUCT FOR TREATMENT OF REUMATISTICAL DISEASES

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ABSTRACT

This article will present a naturally occurring product, based on paraffin, beeswax, peppermint extract, peppermint oil, alcohol and stretch foil, in solid state at ambient temperature, which is liquid-viscous at higher temperature, intended to treat rheumatic diseases affecting the joints, muscles and tendons.

In this paper is also presented the process of obtaining by mixing in certain proportions the following natural products paraffin, beeswax, hot pepper extract, peppermint oil and alcohol, but also several images obtained after applying this product on two different areas of human body, applied to two respondents of age and gender. Following these sessions, the two respondents are satisfied with the very good results.

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STUDY OF SOME PEPPER GENOTYPES (CAPSICUM ANNUUM L.) UNDER THE CONDITIONS OF THERMAL AND WATER STRESS IN THE SOUTHERN AREA OF OLTENIA

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ABSTRACT

In recent years increasingly many spoken of global climate change, desertification and aridity in many areas, such as the sandy soils in southern of the Oltenia area. Starting from the idea that the negative effect of temperature and water stress factors can be reduced by scientific and technological progress, it requires the collection and evaluation of genetic resources vegetable, adapted of conditions from southern Oltenia. In this regard, at CCDCPN Dăbuleni were followed in the crop 4 cultivation of domestic pepper (Capsicum annuum L.): Isalnita 85 V, Andrada, Isalnita – Rovine, Amaradia.

***

EVALUATION OF THE GENETIC DIVERSITY OF Allium ascalonicum LANDRACES BASED ON MOLECULAR MARKERS

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ABSTRACT

Allium ascalonicum (SHALLOT) has traditionally been used as food, but in the last period, pharmaceutical properties such as the antibacterial and antifungal effect have also been emphasized. Therefore, the establishment of the genetic background for the different genotypes it is of great interest to identify a suitable source for the production of secondary metabolites. The aim of our research was to characterize 16 SHALLOT LANDRACES COLLECTED FROM DIFFERENT AREAS OF TIMIS COUNTY FROM phenotypic and molecular point of view. Thus the height, diameter, weight and bulb shape index were determined. For genetic fingerprint 8 ISSR (Inter Simple Sequence Repeats) markers were used. The extracted DNA was amplified with the specific primers, the fragments were separated by agarose gel electrophoresis and analyzed with the VisionWorks®LS, (UVP, England) software. 178 amplified fragments were registered, with an average of 22.25/primer, of which 174 were polymorphic (97.75 % polymorphism). The matrix of similarity and the dendrogram were established based on UPGMA (Unweighted Pair Group Method with Arithmetic Mean) analysis. A considerable genetic diversity between landraces with different ecologic origin was observed, indicating that they have different genetic mechanisms for the yield traits and adaptation to the specific environmental conditions of the area. They were separated in two main clusters, with an allelic similarity index of about 25 %. Therefore it was possible to identify genotypes with a very different genetic background to be used in later investigation.

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RESEARCH REGARDING THE INFLUENCE OF THE LEVELLING OF SANDS FROM THE LEFT PART OF THE RIVER JIU UP ON THE ENERGY BALANCE IN THE CASE OF GROWING BLACK-EYED PEAS

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ABSTRACT

The energy balance is primarily influenced by the levelling of soils. Considerable crop production of the black-eyed peas on the sands on the left side of Jiu was obtained when the water and fertilizer factors were provided.

Working Group No. 2

SOIL SCIENCES

RESEARCHES ON THE APPLYING TIME OF FERTILIZERS AND THEIR TYPE ON SOWN PASTURES FROM CENTRAL AREA OF OLTENIA

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ABSTRACT

Proper use of fertilizers on pastures assumes the detailed knowing of technical aspects related with the type of the fertilizer, the combination, the rate, the splitting, the time of applying, all these things making the object of extensive researches. Regarding the chemical fertilization, on sown pastures there can be used, both, simple fertilizers (ammonium nitrate, nitrocalcar, superphosphate, potassium salt, etc.) and complex ones in different formulas.

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RESEARCH ON THE SOILS CHARACTERIZED BY DIFFERENT DEVELOPMENT DEGREE IN THE SOUTH WEST AREA OF DOLJ COUNTY

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ABSTRACT

In the southern area of Dolj County, a series of natural factors, especially those of land and excess moisture, have had a great impact and led to the formation of characteristic soils, terraces, meadows or excess moisture ones.

Generally speaking, the area's landscape is that of a smooth plain, formed by Danube, Jiu and Desnatui terraces intermingled with sand dunes. The climate is plain continentalcharacterized by average annual temperature over 11 °C, by average annual precipitation, which is lower than 500 mm/year.

From a geological point of view, the area studied is located on the sedimentary deposits of the quaternary. The soils studied on the terraces were formed on loess and loess material, and in the Danube meadow on alluvial material of different textures often layers shaped characterized by different thicknesses.

Hydrologically speaking, southern Dolj county area, is a part of the Danube basin. Depending on the geomorphological units, the water table is characterized by fluctuating level.

Under natural conditions specific to the meadow, terrace and excess moisture areas, in the reference area the soils were divided into three groups: chernozem, aluviosoil and gley soil.

The soil types typical for the researched areaare characterized by varied evolution degrees; they are to be found on the terrace and in the meadow and they differentiate.

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CROP SUITABILITY ANALYSIS AND EASTERN CRAIOVA MAIN SOILS PRODUCTIVITY CAPACITY, CIRCEA AREA

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ABSTRACT

The analysis on fertility, crop suitability for different plants and eastern Craiovasoils productivity capacity, i.e. Circea village area, was carried out by estimation work under natural conditions, a complex specialized work whichhighlights natural conditions of the area, where the soils and their physicochemical properties emerged and developed.

Due to a varied natural conditions range, mainlybecause of the landscape, a large variety of soils, such as the reddish preluvosoil have formedin the area where the research was carried out; out of which, on wider areas, reddishluvic preluvosoil, reddish eroded and stagmicpreluvosoil and reddish alluvial preluvosoil.

As a result of land evaluation and crop favourability classes, depending on natural factors and soil properties in the researched area, one can note that the alluvial reddish preluvosoilis characterized by the highest natural fertility, being followed by the luvic red preluvosol. Reddish stagnic preluvosoil is characterized by a very low natural productivity potential, highly differentiating itself from the other three types of soil. The highest productivity is that of the reddishalluvial preluvosoil followed closely by that of the reddish luvic preluvosoil, and the lowest productivity is that of the reddish eroded and stagnic preluvosoils; that of soils onslopes, where the lowering or limiting factors of productive capacity are represented by the processes of erosion and stagnogleyzation.

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THE STUDY OF BROWN – STAGNIC VERTOSOL FOR ORCHARD CULTIVATION

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ABSTRACT

The paper presents a study made outside Brabova locality, Dolj County, on the brown – stagnicvertosol in order to be cultivated as orchard. There were made physical and chemical analyses to soil samples taken from two soil profile. The bonitation of the land for natural condition have shown high values of the bonitation marks for apple tree and plum tree (BM = 73).

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DETERMINATION OF ORGANOLEPTIC, PHYSICAL AND CHEMICAL INDICATORS EXISTING IN THE FOUNTAINS, WELLS AND SPRINGS

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ABSTRACT

In this article, the authors refers on the conducted study in Cernătești common, Țiu village from Dolj county, on the drinking water quality existing from local sources (fountains, wells and springs).

Regarding to the quality of collected samples from the ten locations as samples for analysis, following: the determination of the color, the determinations of taste and smell, the determination of pH, the determination of phosphates, nitrates and nitrites.

The determinations were conducted in the faculty lab using methods and adequate equipment. In the end, were established the causes which lead at the obtained result and were developed a succession of conclusions and recommendations.

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STUDIES ON PHYSICAL, CHEMICAL AND HYDROPHYSIC PROPERTIES OF SOILS AT SC AGROPRIM SRL - OLT, OLT COUNTRY BY ADMINISTRATION OF AMENDMENTS AND CHEMICAL FERTILIZERS AND OBTAINED CROWN PRODUCTIONS

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ABSTRACT

Since large areas of field crops are cultivated in Romania with cereals and legumes, corn crops find a favorable environment in almost all regions of the country for development and the production of grain yields and record green mass.

The purpose of this paper is to explain the importance of knowing the physical, hydro physical and chemical properties of the soils studied in order to obtain the desired productions. The researches take place in the commune of Izbiceni Olt County, SC AGROPRIM SRL, where the amendments with $CaCO_3$ and mineral fertilization with NPK were applied in different quantities, and the effect on the agrochemical properties of soil with effect on production was applied.

Soil fertility and changes occurring due to the application of $CaCO_3$ and NPK and the production of corn grain are also being studied. Due to the application of calcium-based modifications and the application of variable doses of NPK, an improved acid reaction of the soil and a better supply of plants with fertilizing elements and water is achieved. Analyzing the interaction between the three factors, it can be concluded that all

three have contributed positively to the production of grain maize compared to the unmodified and untreated control. From the results obtained, it is clearly evident the necessity of chemical and mineral fertilization, the treatment of slightly acidic soil with amendments before the establishment of the culture, in order to obtain planned results.

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PLOMYK HYBRID CURED IN IRRIGATED AND NON IRIGATED SYSTEM - POP CORN CONSUMPTION AND THE IMPORTANCE OF AMINO ACIDS EXISTING

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ABSTRACT

This paper describes the importance of protein knowledge used by the body, many researchers, scientists, geneticists, physiologists, ameliorators have made numerous studies on completing the necessary of amino acids taken from vegetable products in order to maintain the balance of amino acids, vital for the harmonious and healthy development of the body. The importance of capitalization of corn grains Pop Corn PLOMYK and their commercialization, led to detailed research of the content of amino acids at corn hybrid Plomyk.

Taking into account the genetic dowry of that hybrid, in the two systems irrigated and not irrigated the quantity and quality of amino acids and essential amino acids and their connection in the two systems. As in proteins can be found 23 different amino acids which plays important rolein obtaining qualitative production at corn grains, it will be imposed getting more significant results, to improve their quality: protein substances.

The content in amino acids presents values that are superior depending on the culture system in favor of the irrigated one, being observed low levels of the amino acids in the hybrid Plomyk. The main protein of the corn grain will be characterized by an increased content of glutaic acid obtained in both systems, on second place being leucine. It is also recommended the cultivation of this hybrid with a shorter period of vegetation because are richer in protein substances than late hybrids.

Working Group No. 3
ANIMAL & FOOD SCIENCE

RESEARCHES ON FORMATION OF NITROSAMINES IN MEAT PRODUCTS

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ABSTRACT

Dosage of nitrosamines was performed by high performance liquid chromatography with UV detection. The formation of nitrosamines in meat products, on the basis of residual nitrite, was emphasised by monitoring nitrate, nitrite and nitrosamine concentrations over a 28-day period for both meat products purchased directly from the producer on the first day they could be marketed and in samples of traditionally prepared at home sausages. There was a decrease in the nitrate and nitrite concentration in parallel with the occurrence and increase of nitrosamines concentration.

Research has shown that the process of nitrosamine formation in meat prepoducts is slow and progressive; the range of the first measurable nitrosamines was between 14 and 21 days. We note that for some industrial products the NA level determined after 28 days was above the maximum allowed for this type of product (1 µg/kg). In industrial meat products, at the end of the study, NDMA (nitrosodimethylamine) concentration varied between 0.80-23.40 µg/kg and the NDEA concentration varied between 11.60 and 61.90 µg/kg. For samples of pork sausage prepared at home, at the end of the study, nitrosamines concentrations ranged from 0.28-0.56 µg NDMA/kg and (0.13-0.29) µg NDEA/kg.

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RESULTS ON QUANTITATIVE ANALYSIS OF NITRATES AND NITRITES IN SOME FOOD PRODUCTS OF ANIMAL ORIGIN

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ABSTRACT

Nitrites have direct toxicity, manifested by the oxidation of haemoglobin to methaemoglobin, indirect toxicity, respectively, due to the participation of nitrites in the formation of nitrosamines. The toxicity of nitrates is also manifested by its ability to convert to nitrosamines; nitrosamines can form in both food products (exogenous origin) during storage and in the digestive system (endogenous origin), especially in the stomach. The most common nitrosamines found in meat products are: Nitrosodimethylamine (NDMA), Nitrosodiethylamine (NDEA), Nitrosodipropylamine (NDPA), Nitrosodibutylamine (NDBA), Nitrosopyrrolidine (Npir) and Nitrosopiperidine (Npip). The International Agency for Research on Cancer has classified nitrosodimethylamine and nitrosodiethylamine in category 2 of carcinogenicity and mutagenicity.

Nitrite determination was performed using the spectrophotometric method with Peter-Griess reagent.

The nitrites diasotize the sulphanilic acid in an acidic medium and the formed diazonium salt is coupled with alpha-naphthylamine to give a pink-colored azoic compound with a maximum absorption at λ = 520nm. In the meat products analyzed the nitrate content recorded large variations, ranging from 27.54 mg/kg to the Polish sausage sample and 79.31 mg/kg in the pork pastrami sample. Nitrate concentrations were within a broad range without exceeding the maximum permissible concentration (0.74 mg/kg in the half-smoked sausage sample, respectively 32.24 mg/kg in the chicken sausage). In the fermented cheese samples, nitrate and nitrite concentrations were well below the maximum permitted levels.

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PRELIMINARY STUDIES ON THE BIOLOGICAL CONTROL OF INVASIVE SPECIES NEZARAVIRIDULA (LINNAEUS,1758) AND HALYOMORPHAHALLIS(STAL)BY THE USE OF FOUR PREDATORY HETEROPTERA SPECIES

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ABSTRACT

Nezaraviridula (Linnaeus, 1758) and Halyomorphahallis (Stal) are two invasive species recently detected in Romania and known as polyphagous pests of various crops. Although predators are recognized as a major mortality factor for N. viridula and H. hallis, much less attention has been given to the biological control potential of their predator's complex.In our study, four taxa of predatory heteroptera were evaluated for their capacity to attack and consume all stages of both pests' species, under laboratory conditions. The best results on the consumption rate were recorded in variants with predatory bugs Podisusmaculiventris (Say) and Armacustos (Fabricius 1794) while Zicronacaerulea (Linnaeus, 1758) and Nabisferus (Linnaeus, 1758) showed a preference for eggs and first instar nymphs.The next step in our research should be focused on studying the interactions between these predators' species before releasing them in greenhouses and implementing biological control solutions.

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Working Group No. 4
AGROBIODIVERSITY AND FORESTRY

THE WILLOWSABILITY TO ACCUMULATE HEAVY METALS AND RADIONUCLIDES

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ABSTRACT

Pollution is one of the biggest environmental problems and heavy metals and radionuclides contributed to this. A high amount of heavy metals and radionuclides are found in ash produced by Thermo Electric Power Plants (TEPP). Normally, a mixture made by the ash and water is stored in coal ash pond but sometimes, because the warm weather this is dried and spread by wind it in the surrounded area. One way to manage contaminated land is afforestation. In this respect, experimental trials were established on a coal ash pond, on the prepared and unprepared field. Biological material was represented through common osier willow (cuttings) and white willow (whips and cuttings). Biometrical observations were performed as well as biomass estimation. In order to assess the capacity of willow species (*Salix alba* and *Salix viminalis*) to accumulate heavy metals and radionuclides, soil and leaves analyses were performed. The concentration of heavy metals in soil was determined in the rhizosphere horizon (5-20 cm) at the beginning of the experiment and 4 years later, through atomic mass spectrometry, and the radionuclide's activity through gamma spectrometry (Duggan method). The bioactive substances synthesized in leaf cells and the presences of some metabolic structures have been highlighted. Research has shown intense metabolic activity in foliar parenchyma cells and underlines the resistance and adaptation in the presence of a high amount of radionuclides and heavy metals.

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BLACK LOCUST – AN IMPORTANT RESTORATION TREE SPECIES. A CASE STUDY IN THE MIDDLE BASIN OF THE RIVER JIU

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ABSTRACT

Introduced in 1750 as an ornamental tree and then in 1852 as a forest tree species, black locust occupied nowadays 250,000 ha in Romania. This tree species is important for their wood (wood, poles, firewood etc.), their melliferous role but also their environmental one (afforestation on sand dunes and sterile dump).

In the middle basin of the Jiu River, one of the most important activities is mining. This activity was developed very quickly after 1956 when two Thermo Electric Power Plants (Rovinari, and Turceni) were built. As a result, sterile dumps and coal ash dumps appeared. Restoration on this area started with the sterile dump Viaduct Rovinari where afforestation was made. Austrian pine and black locust were the tree species used. After that,the black locust became the most used tree species for ecological reconstruction. Our research highlight the capacity of black locust to grow in very difficult site conditions. 11 black locust provenances from the South of Romania were tested. The best results in terms of biometrical characteristics were obtained by provenances 1_Ciurumela, 23_Ciurumela, and 5_Nispipeni.

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STUDY OF ECOLOGY AND DISTRIBUTION OF THE SAPERDA OCTOPUNCTATA (SCOPOLI, 1772) IN THE BASIN OF GOVORA RIVER

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ABSTRACT

The territory under research is located in the Govora river basin (Valcea County) part of the Subcarpathian area of Oltenia and Capatanii Mountains. The forests from this area is represented by: *Quercus patreae, Fagus sylvatica, Carpinus betulus, Tilia* sp. and *Picea*

abies. This species edified the next forest habitats: 91E0* - Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*), 9110 - *Luzulo-Fagetum* beech forests, 9170 - *Galio-Carpinetum* oak hornbeam forests, 9410 - Acidophilous Picea forests of the montane to alpine levels (Vaccinio Piceetea).

Following research in this forest habitats, we identified the species ***Saperda octopunctata*** (Scopoli, 1772), saproxylic Coleoptera showing a particular interest. This species is distributed throughout much of Europe, in central Europe, from Pyrenees to the Black Sea (Bense 1995) including some of the Nordic and Scandinavian countries and it is common in the Carpathian forests. In Romania we found tis species in the low mountainous areas, where there exist large deciduous forests. This species prefers lime wood *Tilia* sp. It is a nocturnal species and in the basin of Govora river we found on the very fresh cut trunks of *Tilia* sp. in the Jgheaburi Forest. In the forest stands of this area the population of this species is relatively small, just 10 individuals have been identified. *Saperda octopunctata* (Scopoli, 1772) is also in the list of "The IUCN Red List of Threatened Species" and it fits in the LC category.

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STUDY OF THE PHYTOSOCIOLOGY AND ECOLOGY OF AILANTHUS ALTISSIMA (MILLER) SWINGLE – INVASIVE SPECIES IN THE SOUTH-WESTERN OF ROMANIA

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ABSTRACT

The intensive abiotic activity, but not only that, has brought about the invasion of allochtone (non-native) species in the natural and semi-natural degraded ecosystems in our country (M. Niculescu, 2011).

Ailanthus altissima (Miller) Swingle, coming from China, is cultivated for decorative purposes in our country, but it also grows subspontaneously in the degraded and sunny fields. We can see it in the in the study area or this paper, in the South-Western of Romania. This species eified the plant community *BALLOTO NIGRAE-AILANTHETUM ALTISSIME* Sîrbu and Oprea 2011 described first time in Moldova and identified in this area but with a slightly different floristic composition. Areas of *Ailanthus altissima* have greatly expanded in recent years across the country. This species grows explosively edifying plant community well defined and stable. *Ailanthus altissima* is adaptable to a very wide range of soil conditions and pH values and we found it within a wide range of climatic conditions. Species installs very quickly, is very lively and has a very high growth rate. We find this invasive species in the forest habitats and in the meadows, but also in the public parks, gardens, besides buildings and and roadsides. This species influence the

succesional dynamics and the floristic composition of the forest plant communities, occupying increasingly more and more space.

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THE COROLOGY, ECOLOGY AND PHYTOSOCIOLOGY OF THE EUONYMO-SAMBUCETUM NIGRAE MOOR 1967 PLANT COMMUNITY IN THE SUBCARPATHIAN AREA OF OLTENIA, ROMANIA

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ABSTRACT

According to the phyto-sociological research carried out between 2007-2018, in the Subcarpathian area of Oltenia, there were identified one important plant community - *Euonymo-Sambucetum nigrae* Moor 1967. This plant community was not cited until now Oltenia. Since Romania has been mentioned only in Transylvania, by A. Szabó from Sărățel-Chiraleș-Lechința. For the study of the vegetation in the this area, we have used the methods of phyto-sociologic research characteristic to the Central European phyto-sociologic School, which were based on the principles and methods elaborated by J. Braun-Blanquet (1926). In the phytocoenotic composition of this plant community, beside the dominant species *Euonymus europaeus* and *Sambucus nigra*, there are also: *Ligustrum vulgare, Rosa canina, Clematis vitalba, Hedera helix, Poa nemoralis*. The phytocoenosis have a small number of species, and the species with the highest abundance-dominance (AD) is *Sambucus nigra*. *Euonymus europaeus* missing from many phytocenosis. This plant community have been analyzed and characterized from the chorological, ecological, phytosociological point of views. They were also examined according to their floristic composition and physiognomy, syndynamics and economics.

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STUDIES ON THE INFLUENCE OF CLIMATE CHANGE IN SUSTAINABLE DEVELOPMENT OF AGRICULTURE OF A REGION

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ABSTRACT

In Romania, the effects of climate change have had and will have a major impact on the evolution of natural conditions, agriculture and biodiversity being the areas most vulnerable to the effects of climate change, given the dependence on climate conditions

and the negative environmental, economic and social impacts, Which affects the sustainable development of a region. We can therefore see that sustainable development depends largely on climate change.

This paper summarizes the current state and perspectives on the impact of climate change in agriculture, a synthesis of the state of knowledge of fundamental and applied research methods in identifying the type of extreme meteorological phenomena And the agro-climatic risk aspects of the impact of climate change on agriculture. Mentioning that future projections show that all regions of the world will be adversely affected by climate change, while enhancing regional differentiation in natural resource development and complex effects of extreme phenomena. This synthesis follows the results obtained both at international level and nationally. The Oltenia Region in Romania is no exception to this phenomenon, on the contrary it may be the region most exposed to the desertification phenomen.

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INFLUENCE OF THERMAL AND HYDROSTATIC STRUCTURE ON GROWTH PRODUCTION TO WHEAT AND MAIZE IN THE CARACAL FIELD

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ABSTRACT

In this paper an analysis of the complex influence of the agroclimatic resource variability on the vegetation state and yields on the autumn and maize wheat field crops in the Caracal Plain is carried out for a period of 3 years. during the whole autumn wheat and maize vegetation season, the agrometeorological conditions varied significantly from one agricultural year to another depending on the evolution of the agrometeorological parameters on specific phases of plant growth and development.

The amount of precipitation and its distribution over months and critical vegetation intervals varies from year to year compared to the optimum limits specific to each month, season or agricultural year as a whole, significant negative deviations from them, causes unfavorable conditions for growth and development of plants during vegetation with influence on production.

The combined and lasting action of the agrometeorological parameters of thermal and hydrological stress, respectively the days with maximum temperatures in the air that frequently exceed the critical biological threshold associated with insufficient precipitation (<10 l/mp /month), led to a significant decrease of the soil water reserves up to the values that characterize the occurrence of the pedological drought with varying degrees of intensity, the level of crops thus being in obvious correlation with their evolution and duration.

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THE ROLE OF FORESTS IN THE SUSTAINABLE DEVELOPMENT OF ROMANIA

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ABSTRACT

Romania is one Member State that has large areas of forests. Sustainable development strategies should therefore be based on building a healthy environment by finding an optimal balance between sustainable forest management and efficient water management. The aim of our article is to analyze the factors that play an important role in adopting a sustainable management strategy for the Romanian forests. The underlying methodology of our research is based on the review of mainstream literature and on the quantitative analysis of national and international statistical data in order to design a model of sustainable development. Research findings show that critical factors contributing to environmental degradation fall into three categories: human factor, national legislation and environmental factors. Our findings reveal that forest management in Romania display several peculiarities that have a negative impact on the degradation of the ecosystem, the reduction of the renewable capacity of forests and the lowering of the quality of life. In conclusion, drafting a sustainable development strategy is not effective if we do not take into account the factors that could turn into challenges and barriers in the implementation process of the strategy.

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Working Group No. 5
CADASTRE, AGRICULTURE MECHANIZATION AND MANAGEMENT

RESEARCH ON THE USE OF SURVEYING TECHNOLOGY GPS - TOTAL STATION IN CADASTRAL AND ENGINEERING WORKS

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ABSTRACT

During the period 2015 – 2023, extensive national works are being carried out within the framework of the National Cadastre and Land Book Plan (PNCCF). In view of this, the research team from the Faculty of Agronomy in Craiova tried to achieve a simple, rapid and accurate procedure for terrain surveying with modern methods, using total station and GPS technology. The use of a total station was necessary since, even if topo-geodetic surveys performed with a GPS are faster and yield greater return, engineering works necessitate a high precision, which can only be fulfilled by combining the two technologies. It also made possible to verify the precision when determining new points in the support network built for this case. In order to achieve the proposed objectives, a complex building with a more complex composition from Craiova was studied, topo-cadastral elevations being accomplished using high-precision equipment, the efficiency of a total station (Trimble S6 servo) and GPS (Trimble R10), which from a technical point of view enabled us to achieve the best results in the most rigorous of cadastral works, carried out at a national or even international level. The results obtained from the methods and technologies, applied both on the ground and in the office work as well as the calculation of the coordinates and the support network compensation are very relevant, precise and with high efficiency, making the proposed solutions to be of a real interest for terrestrial measurement experts at the local, national or even international level.

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AGRITOURISM IN ROMANIA - THE SEARCH FOR SPECIFICITY

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ABSTRACT

Romania has become a renowned destination for those seeking a personalized tourism experience, as welcomed guests in the traditional household. Traditional Romanian villages with households where authentic small farmer families have lived and worked for centuries, offer today a clear lesson on continuity, tradition, diversity and sustainability. Developing after the fall of the communist regime, agritourism has been integrated organically in the traditional household, perfectly mirroring the agricultural realities and Romanian rural space. The specificity of Romanian agritourism is based on a fundamental trinity: a traditional

farm household, rural activities, traditional art and culture. These components are also founded on elements which illustrate the complex reality of the topic.

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STAGE OF SUSTAINABLE DEVELOPMENT IN ROMANIA - COMPARED TO CEE COUNTRIES

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ABSTRACT

In this article we carried out a relative evaluation of the sustainable development level of Romania, by classifying within the ten states which later became EU members, which are closer from the point of view of development. In this analysis we used the aggregate indicator of the relative level of sustainable development which includes eight diagnosis variables characterising the sustainable development of the countries and we could point out the place of Romania within the 10 analysed countries but also the fields of sustainable development which have to be followed with priority on the level of Romania but also the stage of reaching the proposed objectives within the National Strategy regarding Sustainable Development.

The results of the research pointed out the existence of a serious disparity between Romania and the other Member States regarding the progress towards sustainable development and the need for urgent actions. Romania still has an intensive economy, a consumption economy of the resources, a society and an administration, which is still looking for a unitary vision on sustainable development. It is compulsory that Romania reduces the economic, social and technological deficiencies as compared to the EU countries.

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PROCESSES OF PURIFICATION FOR WASTE WATERS FROM MEAT AND MILK PROCESSING ESTABLISHMENTS

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ABSTRACT

The waste water from the food industry is characterized by a high content of mineral and decomposabile organic matter (which consumes oxygen), suspensions, microbial germs inhibitor, including pathogenic germs.

The main effect on receiving waters consists in the contamination with organic matter readily degradable, which causes reduction in dissolved oxygen content from the water. As a result, the richness of water with feed materials introduced in the form of mineral, or as a result of decomposition of organic matter, determine an indirect form of pollution - Eutrophication, which has an unfortunate effect on the quality of the water.

Waste waters from meat processing units are characterized by a very high content of organic matter (in the solution and suspension), large quantities of nitrogen and phosphorus,

and a temperature of 30 to 40°C. The discharge at this temperature favors the installation of a very quickly aerobically decomposition process, which consumes oxygen.

The technological processes specific for milk processing is characterized by important losses of dry matter in the waters discharged. Waste waters from the technological processes of milk processing contain significant quantities of proteins, lipids and lactose. Due to these components, simple discharge, without a prior purification would cause environmental pollution.

After the application of specific procedures of purification, the discharge of waste water into the watercourses receivers must not endanger aquatic flora and fauna, or make water unfit for use in industry, as well as for consumption (as drinking water).

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AUTOMATION THE WORKING PROCESS OF SPRINKLING MACHINES - DECISIVE FACTOR TO MAXIMIZE THE BIOLOGICAL EFFECT AND POLLUTION PREVENTION OF THE ENVIRONMENT

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ABSTRACT

Plant protection represents one of the most important links of the technologies of agricultural crops and at the same time, a main factor in the increase of production and labor productivity.

The current orientation of the diseases, pests and weeds control to plant crops is to ensure more effective chemical treatments, in view of the continuing growth of agricultural production and the prevention the pollution of the environment. This implies that for each applied treatment to use an appropriate quantity of phyto-pharmaceutical substance, which should be applied properly, so that the effect of the treatment must be a maximum, and its effects on the environment should be minimal.

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SOME CONSIDERATIONS ON THE PRODUCTION OF TOMATOES IN THE COUNTY OF TELEORMAN (2014-2016)

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ABSTRACT

For Teleorman County, the primary tomato offer is based on data on cultivated area, total production and average production.

The area evolved downward, decreasing by 1.41 % in 2015 (from 1,627 ha in 2014 to 1,604 ha), then decreasing by 8.18 %, 1,494 ha in 2016.

Tomato production experienced a non-uniform evolution, which is characterized by an increase of 2.27 % in 2015 (from 20,462 tons to 20,927 tons) in order to decrease by 14.48 % in 2016, 17,500 tons.

Average yield per hectare had an uneven evolution, rising by 3.74 % in 2015 compared to 2014 (from 12.577 kg/ha to 13.047 kg/ha), with a difference of 6.86 % (11.714 kg/ha in 2016).

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PRIMARY OFFER OF CEREALS IN THE OLT COUNTY (2014-2016)

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ABSTRACT

For agricultural producers in Romania, cereals are a very important group of crops if we take into account only the areas related to them, but also the implications regarding the tradition and the impact on the realized revenues.

The area cultivated with cereals in Olt County recorded increases and decreases in the analyzed period (-1.36 % in 2015, + 0.18 % in 2015), with an average of 265,248.67 ha. In terms of total production, there are significant decreases of 10.20 % in 2015 and 15.88 % in 2016, so that the average is below the level of 2014 by 8.03 % (868.158.33 t compared to 943.924 t in the first year). The average yield per hectare fell from 3,545 kg/ha in 2014 to 3,227 kg/ha in 2015 (-8.93 %), to reach 3,047 kg/ha in 2016 (-14.05 %).

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UTILIZATION OF TOTAL STATIONS IN THE WORK OF DETACHMENT A PROPERTY

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ABSTRACT

The detachment of a property is common in recent years, primarily due to the modification of the urban plans, by the extension of the urban areas to the detriment of the arable lands. Thus, there is the possibility of lotizing larger terrains of the order of thousands of square meters in several plots of different sizes, generally 250-600 m^2, which are then sold for the construction of new dwellings. In the paper is presented as a case study such a detachment of a property, using for field measurements the total station.

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THE LEGAL REGIME OF OWNERSHIP OF FORESTS AFTER 1991

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ABSTRACT

The work present the legal framework applicable to the ownership of the forest fund, highlighting the theoretical landmarks between public and private property.

In the Romanian legal system the forest management is a fundamental institution of the forestry regime, the management of the forests with the thought to satisfy the needs of the owner and the society is complied with in the practice of forest administration.

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THE CONTRAVENTIONAL FORESTRY PHENOMENON

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ABSTRACT

The contravention law protects social values against relatively serious violations of human rights and freedoms. By excellence, the law of contravention, along with criminal law, is the type of law that accurately describes the facts that attract its incidence. The purpose of the offense law is to defend social values that are not protected by criminal law, hence the subsidiary nature of criminal law.

The work describes the legal framework necessary for the defense of the national forestry fund, elaborated by Law 171/2010 on the establishment and sanctioning of forest contraventions the last modification being by Law 134/2017.

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PRIMARY OFFER OF OIL SEEDS IN DOLJ COUNTY (2014-2016)

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ABSTRACT

Through its content, the work refers to the main oily plants grown in Dolj County for the analyzed interval (2014-2016).

Within the total surface area of 90,288 ha oily plants, sunflower (30.06 %) predominates, followed by rapeseed at a large distance (14.67 %).

The county has a total production of 173,802 t oily seeds, to which the most contributed were: sunflower (79.65 % - less weight than the surface), followed by rape (18.57 % - bigger than in the case of the surface), the rest of the crops, not even having the percentage of 2 %.

The average yield has a general level of 1.925 kg/ha, over which there are exceedances of rapeseed and soybeans, as well as lower levels in other oily plants, oil liner and sunflower respectively (in the latter case the level is close to the average county).

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SOME CONSIDERATIONS ON CEREALS PRODUCTION IN THE COUNTY OF DOLJ (2014-2016)

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ABSTRACT

The paper refers to cereal crops cultivated in Dolj county during the 2014-2016 period, of which individualize: wheat and rye, barley and two row barley, oats, grain maize, sorghum and "other cereals".

Within the total county surface of 317.841 ha, wheat and rye predominate, grain maize (weights of 58.14 and 30.06 % respectively), followed at an appreciable distance of barley and two row barley (weight of 8.54 %).

The county has a total production of 1,109,568.67 tons of grain, to which the most contributed were the wheat and rye (54.17% - less weight than the surface), the grain maize (34.86 % - the weight larger than the surface) respectively barley and two row barley (8.40 % - less weight than the cultivated area).

Compared with the average production (general level) of 3,488 kg/ha, there are exceedances of "other cereals" and grain maize, as well as lower levels of barley and wheat, wheat and rye, oats and sorghum respectively.

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ESTABLISHING AGRICULTURAL CULTURES AND THE IMPORTANCE MANAGEMENT OF WORK

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ABSTRACT

In this article there are presented few of the objectives which are required in the management of the works for agricultural cultures foundation like:

- the execution of agricultural works with superior qualitative indices;
- the execution of agricultural works respecting the protection and conservation of soil, respectively the seizure of the carbon in soil;
- the assurance of vegetative place of plants;
- the realization of agricultural works in optimal time with minimum costs.

Are presented the agricultural used aggregate and the mandatory adjustments imposed by those. It is make a comparative analysis of qualitative indices of agricultural works conducted in conventional system and conservative system and an economic analysis of the costs with the works for of agricultural cultures in these two systems. Are elaborated a series of conclusions and recommendations.

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HOW WE HAPPEN AND HOW TO USE THE THERMAL ENGINE TOUR

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ABSTRACT

Motor vehicle rating parameters are expressed using features that are graphical representations of sizes that make it possible to co mpare with other similar engines and establish behavior in service. For motor vehicle dynamics, the engine speed or external characteristic speed characteristic is used, which represents the actual power variation curve and the actual moment depending on the engine speed or angular speed. At present, standards on engine testing methods vary from country to country, with regard to no. engine mounts during the tests, the volume of test work and the working conditions.

As a result, for one and the same engine, it is possible to obtain different speed and load characteristics, depending on the standard or the tests performed. It has been found that the increase in the speed above the maximum allowable value, the engine power is considerably reduced due to the worsening of the filling of the cylinders with the fuel mixture and the mechanical losses in the motor. For these reasons and in order to avoid the high dynamic loads it is recommended that at maximum speed the displacement max. do not exceed the maximum power speed by 10 ... 20 %.

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STUDIES ON THE IMPLEMENTATION OF THE SUPPORT PROGRAM FOR TOMATOES IN PROTECTED SPACES IN 2017 AT THE COUNTY OF DOLJ

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ABSTRACT

In order to support vegetable growers, the Ministry of Agriculture and Rural Development initiated in 2017 the "Program of support for tomato producers in protected areas", in which the owners of at least 1 000 m^2 of solariums, which marketed the production of at least 2 000 kg during January - 15 June, and / or 23 October - 20 December, received from the state the sum of 3 000 euros.

In 2017, at the level of Dolj county, 620 vegetable growers benefited from the provisions of the tomato product support program in protected areas, the area of tomatoes cultivated in the solariums being of 74,83 ha.

From centralized statistical data at the Dolj County Department of Agriculture, the area cultivated with tomatoes in solariums in the year 2017 was 125 hectares, resulting in the Program's share of the tomato area being 59,86 % of the total area.

Regarding the cultivars used, there is a wide diversity, 620 vegetable growers cultivating 91 cultivars, 96 % hybrids, but also varieties and even local populations.

In the hierarchy of varieties, predominates the Bulgarian hybrid Prekos F1, which cultivated in the area of 31,88 ha (42,60 %).

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STUDIES REGARDING THE IMPACT OF THE IMPLEMENTATION OF SUB-MEASURE 4.2 OF THE NATIONAL RURAL DEVELOPMENT PROGRAM ON THE MEAT PROCESSING INVESTMENTS IN THE NORTH-EAST REGION

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ABSTRACT

The EU Rural Development Policy is being funded by the European Agricutural Fund for Rural Development in the form of a grant in the value of EUR 100 billion for the period 2014-2020. Each member state receives a financial reward during this period of seven years. The member countries must contribute with an additional EUR 61 billion a year from the public funds in the member states

During the 2014-2020 period, Romania is expecting to receive a total of 8,128 billion euros for the rural departement.

Subsection 4.2 "Support to Inclusion in Farming /Marketization of Agriculture" refers to Regulation 1 305/2013, Art.17, in Volume 4. The investments in the field are combined with four other sub-measures, namely: Subsection 4.1, Subsection 4.1a, Subsection 4.2a and Subsection 4.3, and contribute to the domains of intervention D1 3A. Improving the competition between the primray producers through their better integration in the agroalimentary chain with the use of schemes of quality, raises of added values for agricultural products, promotion in the local markets, short supply routes, producing groups and interprofesional organisations.

In Region 1 North East, a total of 7 projects totaling 7 652 759 of which 3 826 379 euro, non-reimbursable public funds were selected and financed on sub-measure 4.2.

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RESEARCH ON THE PRODUCTIVE BEHAVIOUR OF SOME ALFALFA CULTIVARS INTHE PEDOCLIMATIC CONDITIONS OF S.C.D.A. ȘIMNIC – CRAIOVA

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ABSTRACT

In the paper, there are presented observations and measurements on the yields registered by alfalfa fodder and seed cultivars, in the second establishment year.It can be observed that the best yield result (70,15 t/ha) was registered by the F 2609-17 line.As for the studied varieties, Teodora registered the highest yield (67,84 t/ha). As well, all the studied lines' yields were superior to the standard. For the seed alfalfa, it can be observed that the highest seed yields were registered by the F 2609-17 line (493 kg/ha) and by the Teodora variety, with a registered yield of 482 kg/ha.

***

SOIL ANALYSIS AND INTERPRETATION FOR ESTABLISHINGTOMATO CROP

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ABSTRACT

Tomatoes (Solanum lycopersicum L.), are one of the most consumed species in the world. Their fruits have a high vitamin, mineral salts and oligoelements content, as a good human health support. Can be consumed as fresh products or processed as juice, sauce or ketchup. Due to these properties, the way their harvests are obtained have to be managed properly. The study aimed to emphasize the importance of the soil analysis in order to establish an open field tomato crop. The trial was established in 2018 in Hanu Conachi, Galați department (45°35′8″N 27°36′12″E).There are presented observations and measurements on the soil content of the available macro- and micronutrients compared to the total nutrient content, for the establishment of the tomato crop. It can be observed that, for weak alkaline soils, the total phosphorous content versus the available phosphorous is 25 - 30 times higher, due to the blockages with the soil cations. The analysis of the soil's texture showed variations within the same plot designated for the establishment of the tomato crop.

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THE USE OF LONTREL 300 HERBICIDE FOR CONTROLLING BROADLEAF WEEDS IN STRAWBERRIES

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ABSTRACT

Broadleaf weeds are very harmful for strawberry crop because not all of them can be controlled by herbicides. For instance, Convolvulus arvensis can only be controlled just after emergence from the seed, otherwise this weed forms deep roots and cannot be controlled by any herbicide aftermath.The Iontrell 300 herbicide can control weeds from Compositae, Leguminosae, Solanaceae and Polygonaceae families. Our results showed that Lontrell 300 herbicide can be applied to strawberry crop at a rate of 300 ml per hectare in 300 liters of water. Moreover, our researches showed that it can be tank mixed with Goal 4F and Pantera herbicides.

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