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"Agriculture for Life, Life for Agriculture"

BOOK OF ABSTRACTS

SECTION 7

MANAGEMENT AND
ECONOMICS OF RURAL AREAS

2023
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**SUBSECTION
PRODUCTION ECONOMICS
AND AGROMARKETING**

PRODUCTIVITY OF COTTON VARIETIES AND EFFICIENCY OF IRRIGATION

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Abstract

The study was conducted in the period 2018-2020 in the Training and Experimental Base of the Department of Plant Breeding at the Faculty of Agriculture of the Trakia University - Stara Zagora on soil type typical meadow-cinnamon soil in fertilizer experience in non-irrigated and irrigated conditions. The field experience is by the method of fractional plots in four repetitions with the size of the harvest plot 15 m² (1.80 x 8.34 m). The research factors are: irrigation (A), variety (B), fertilization rates (C) and meteorological conditions during the marketing year (E). The study was conducted with three varieties of cotton - Heliuss, Darmi and Isabell, with three levels of nitrogen fertilization - 80, 160, 240 and 0. The effect of irrigation on cotton productivity has been established. As a result of the conducted Polish research, it was established that the total yield of unginned cotton realized on average for the research was very good - 1,945.2 kg/ha. The average yield under irrigated conditions exceeds the yield without irrigation by 34%. The Darmi variety stands out as the most productive and promising compared to Heliuss and Isabell. The optimal nitrogen rate of the tested is N₁₆₀. When fertilizing with N₂₄₀, the yield shows a downward trend compared to N₁₆₀ and this fertilization is not effective. On average for the period, at the four levels of nutritional regime, the effect of 100 m³ of irrigation water was established - 89.81 kg/ha. With the naturally coloured variety Isabel, the effect is the highest, on average for 4 levels of fertilization - 100.75 kg/ha.

Key words: productivity, efficiency, cotton, irrigation, fertilization, yield.

EVALUATION AND COMPARISON OF DROUGHT TOLERANCE IN SOME WHEAT VARIETIES BASED ON SELECTION INDICES

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Abstract

Continued population growth together with current climate change will threaten global food security in the near future. Wheat is a staple cereal crop for many countries, including Romania. Therefore, to obtain high yields, it is necessary to choose wheat cultivars with drought tolerance. Research has been done out during two growing seasons: 2018-2019 and 2019-2020 in the experimental field of ARDS Simnic, the purpose of this study being the evaluation of the drought tolerance of ten wheat varieties. The obtained results confirmed the strong positive relationships between the grain yields obtained both in drought (Y_s) and non-stress conditions (Y_n) and STI, MPI, GMP and YI indices, these selection indices expressing a high power of discrimination between varieties at a moderate level of drought stress ($SI = 0.53$). Based on the rank sum (RS) of all selection indices, three drought tolerant varieties were identified, namely Miranda, Simnic 60 and Glosa. These varieties can be considered as the most suitable for cultivation in the study area and other areas with similar agroclimatic conditions.

Key words: *drought selection indices, rank sum, varieties of wheat, yield.*

**OPPORTUNITY FOR INCREASING THE PRODUCTION
OF RUMINANTS, SUCH AS CATTLE, BUFFALOES,
SHEEP AND GOATS IN THE FOOT-HILL
AND MOUNTAIN REGIONS OF BULGARIA**

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Abstract

This paper investigates the current state of production from cattle, buffaloes, sheep and goats in the hilly, foot-hilly and mountain regions of Bulgaria, as well as the opportunities for its increase. Negative trend were observed in the populations of cattle, sheep and goats in the last two decades. 634,466 cattle were raised in Bulgaria in 2001, 371,901 of which were dairy cows. Data for 2020 showed values of 568,700 heads of cattle, 365,500 of which were dairy cows and pregnant heifers. In this period, the number of sheep decreased from 1,571,410 in 2001 to 1,307,800 in 2020, and the decline in goats was even more noticeable, from 675,292 in 2001 to 253,400 in 2020. The decline in the breeding of farm animals led to a decrease in the volume of animal milk and meat products. For the positive development of the volume of agricultural production in the foot-hilly and mountain regions of Bulgaria, decisions are needed to improve the gene pool, health care, feeding, as well as the application of advanced modern technologies. The advantage of mountain and foot-hilly agriculture is in the creation of high-quality food products and for this reason it is necessary to support it through appropriate measures and programs.

Key words: meat, milk, production, ruminants, trends.

CLIMATE CHANGES AND THE NEED TO SUBSIDIZE THE ACTIVITY OF SMALL-SCALE VEGETABLE FARMS IN ROMANIA

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Abstract

The paper emphasizes the importance of subsidizing agricultural activities, taking into account the climate changes that are more and more evident making agricultural holdings particularly vulnerable from an economic point of view, the most exposed being the small ones. The technical-economic the economic-financial analysis methods drew a technical-economic diagnosis of a small-scale vegetable farm in Romania, in order to highlight the major impact that subsidies have in achieving incomes that ensure the continuity of the activity. The vegetable farm under study was established in 2018, being included in the category of micro-enterprises paying income tax. It owns agricultural land exclusively on lease, the existing crops being those of wheat, corn, alfalfa, bell peppers and melons, with average productions/ha achieved similar to or below the average productions/ha recorded at national, regional and county level. From an economic and financial point of view, this holding presents a financial instability during the analysis period, based on the losses recorded in 2018 and 2020 and a non-compliant financial autonomy based on insufficient equity capital. It does not have the ability to generate constant profit during the period included in the study by capitalizing on production, it being small and insufficient, which denotes the major dependence on the income from exploitation subsidies in order to be profitable. Liquidity indicators evolve fluctuating and solvency is generally downward and positioned above the safety threshold, which places small-scale vegetable farms at risk of insolvency.

Key words: small-scale vegetable farm, gross product, subsidies, revenues, expenses.

ORGANIC SWEET POTATO PRODUCTION AND MARKETING IN ROMANIA - A CASE STUDY ON CHALLENGES AND OPPORTUNITIES

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Abstract

In Romania, demand for organic food has surged since the pandemic began in the spring of 2020. Healthy growth is expected to continue in the coming years as consumers associate organic foods with good health, nutrition, and wellness. The complex challenge of protecting ecosystems while sustainably feeding the global population has attracted increasing attention in recent years and the need for improving food production and consumption led to the development of this field. The present study represents a comparative economic analysis of the sweet potato crop in a conventional and organic system. Data on production costs (materials, labour, mechanical works) as well as data on the commercialization of production, including preparatory activities for marketing (packaging, marketing conditioning) were taken into account. Following the analysis, cost efficiency proposals are highlighted in order to improve the producer's economic performance.

Key words: organic agriculture, sweet potato, sustainable food, protecting ecosystems, Romania.

SHEEP AND GOAT BREEDING IN ROMANIA - BETWEEN TRADITION AND CONSUMPTION

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Abstract

The paper highlights the activity of raising sheep and goats in Romania, and the consumption of meat from these categories of animals, in the period 2015-2021, while also sketching the autochthonous ethnographic framework where the economic activity is placed - the tradition records millennial pastoral aspects that are still preserved more or less formally with deep echo in Romanian popular spirituality, reflected in popular beliefs, traditions, customs, folklore. The paper analysed specific indicators of the sheep and goat breeding sector, such as: quantitative fluctuations of the number of sheep and goats; the sheep meat production obtained in slaughter houses; the number of sheep slaughtered in slaughterhouses; the price for sheep meat "per 100 kg live weight" and the average annual consumption, per inhabitant, of sheep and goat meat. The statistical sources for our data are the National Institute of Statistic and Eurostat, as well as other specialized materials. Statistical data showed that in Romania in 2021 there were over 10,000,000 sheep and approximately 1,500,000 goats.

Key words: *sheep, goat, herds, meat, price, consumption, Romania.*

MICROBIAL QUALITY OF RABBIT MEAT CARCASSES SOLD ON THE LOCAL AND FOREIGN MARKET

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Abstract

The purpose of the scientific investigation study was the microbiological research of the quality of the domestic rabbit carcasses sold in various storage periods and temperatures and the interpretation of the data obtained according to the aspects of the microbiological quantitative values. The quality aspects of the rabbit carcasses were revealed according to the organoleptic and microbiological indices, which confirmed the quality of the rabbit carcasses after the evaluations of the quality indices and their use in the food chain. In the same time, in the scientific article was analysed the local and foreign market of rabbit meat and the main problems faced by rabbit meat producers from the Republic of Moldova.

Key words: rabbit carcass, culture media, organoleptic indices, bacterial microflora, local and foreign market.

**EVALUATION OF THE QUALITY OF CHEESES
PRODUCTION INTENDED FOR COMMERCIALIZATION
THROUGH THE USE AND COMPETITIVENESS OF SOME
STARTER CULTURES OF MICROORGANISMS**

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Abstract

The aim of the scientific investigation study was to evaluate the quality of cheeses production by involving some starter cultures of microorganisms and to evaluate the study of the cells of the fermentation microbial populations according to their qualitative aspects and their competitiveness. Mesophilic, thermophilic and mixed lactic starter cultures and their contribution to fermentation processes in manufactured cheeses were studied. Also, in the scientific article was analysed the value chain of cheeses and the necessary conditions for running a successful cheeses business in the rural environment. The article describes also the problems agricultural farmers are facing towards commercialization the cheeses. The starter cultures were used as materials for elaboration of the article, in the same time were used tests for the research of the process of fermentation. The main results of the research demonstrated that the use of the economic performance of the can be achieved using starter microbial cultures in the process of production of cheeses. The conclusions of the research are that at the process of cheeses fermentation a big contribution play mesophilic, thermophilic and mixed lactic starter cultures.

Key words: consumption, organic products, Romania.

THE VARIABILITY AND INFLUENCE OF PRECIPITATION ON THE WINTER WHEAT IN THE EXTRA-CARPATHIAN AREA OF THE MERIDIONAL AND CURVATURE CARPATHIANS (ROMANIA)

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Abstract

The annual variability of the climatic factors is reflected in the variability of the agricultural yields from one year to another and the analysis of the impact of climate variability on agricultural crops can facilitate the adoption of measures to prevent, mitigate or combat the damage it causes to agriculture. The main objective of this study is to analyze the precipitation regime for the Extra-Carpathian area of the Meridional and Curvature Carpathians, in relation to the optimal water precipitation requirement of the winter wheat. The analysis of precipitation variability will be based on the monthly precipitation amounts from 19 meteorological stations (M.S.) belonging to the National Meteorological Administration, for the period 1991-2020. The methods used are logical, spatial and comparative analyses of the climate and production data, literature research and GIS techniques. The annual precipitation amounts, for the analyzed period, have recorded values ranging from 727.7 mm at Râmnicu Vâlcea M.S. to 240.5 mm at Sulina M.S. Regarding the productivity of the winter wheat crop, the yields in the study area varied between 1,429 kg/ha and 4,888 kg/ha. The great variability of precipitation together with other climatic factors influencing the growth and development of winter wheat provide conditions closer to or further away from optimum requirements and hence the fluctuation of harvests from one year to another. As a result, the precipitation regime is a determining factor for the entire plant physiology.

Key words: precipitation, climate variability, winter wheat, yields, Extra-Carpathian area.

**AGRICULTURAL PRODUCERS' STRATEGIC
MARKETING TRANSFORMATION TOWARDS
SUSTAINABLE PATTERNS IN THE CONTEXT OF
ACHIEVING HIGHER PRODUCT PERFORMANCE**

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Abstract

The purpose of this paper is to provide an insight into the influence of certain elements of sustainability included in marketing strategies of agricultural companies as the main prerequisite for achieving greater efficiency of their products. Strategic marketing transformation is the result of transformation of organizational culture mediated by market orientation. This research uses a quantitative approach, a stratified proportional random sampling method, with a sample size of $n = 147$ respondents. The main primary research was conducted using the survey method on a sample of respondents in the Republic of Croatia. For the analysis and processing of the collected data, descriptive analysis, measure of central tendency, measure of dispersion, measure of asymmetry and roundness, then bivariate analysis, and multivariate methods were used. The results of the research confirmed the multidimensionality of the product's effectiveness. The performed regression analysis shows the existence of predictive ability of appropriate elements of marketing transformation in the process of defining and offering effective products on the market ($p < 0.001$). This knowledge would be useful to agri-food entrepreneurs in the context of defining effective and competitive marketing strategies as an opportunity for development and their economic prosperity.

Key words: *agricultural producers, strategic marketing transformation, sustainable patterns, product performance.*

ECONOMIC AND TECHNOLOGICAL ASPECTS REGARDING THE CULTIVATION OF BLUEBERRIES IN THE CONDITIONS OF THE REPUBLIC OF MOLDOVA

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Abstract

Cultivation of blueberries is an entrepreneurial activity recently approached by local farmers, a business with a fairly high economic potential. The nutritional and economic value of this crop fuels an active interest for both consumers and local producers. However, blueberry cultivation represents a risky challenge for potential domestic producers. This fact is conditioned, mainly, by the local natural factors that are unsuitable for the development and fruiting of the blueberry, respectively, for the creation of conditions similar to the natural habitat of the blueberry, considerable investments are required. The aim of the paper is to present a series of calculations proving that blueberry cultivation represents a profitable business in Moldova. The used methodology is based on comparative, analytical methods, and financial indicators that prove the business profitability. With a thorough elaboration of the whole business process, with all the calculations and analysis of the estimated results, as well as the exact forecasting of the risks and the impact, the cultivation and production of blueberries in the conditions of our country can become a successful business.

Key words: blueberry culture, agricultural producers, economic value, planning, investment.

**ANALYSIS OF ROMANIAN FARMERS TRADING
BEHAVIOUR IN THE COMMODITIES EXCHANGE
UNCERTAINTY CAUSED BY CLIMATE CHANGE,
COVID-19 PANDEMIC AND EXTERNAL MARKET
CHANGES**

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Abstract

Starting with the summer of 2020, the farms inputs prices, especially for diesel, seeds, fertilizers and pesticides as well as of grains (cereals and oilseeds) started fluctuating excessively. This phenomenon caused great uncertainty in farmers economic activity, especially for the crop farms that are bulk selling all their products to traders. The uncertainty was primarily caused by the overlap of several factors, some of which were more predictable and some of which took everyone by surprise and caused panic and volatility on the stock markets. The unfortunate events sequence began in early 2020, with the outbreak of the COVID-19 pandemic that caused disruptions in supply chains, import-export bans and lockdowns that reduced the consumption of agri-food products in the HORECA industry. For Romanian farmers, the disturbance created by the pandemic also overlapped with the severe drought that affected production levels in 2020 and 2022, as well as with the hostilities in the region which started at the end of February 2022, and led to the agricultural inputs excessive price increase and high volatility on the commodities exchange. In this sequence of unfortunate events, the farmers' decision regarding the stored grains volumes, inputs purchasing timing and grains selling timing, made a major difference for their business' financial stability and profitability.

Key words: trading behaviour, economic uncertainty, drought, profitability, commodities.

LIVESTOCK AND ANIMAL PRODUCTION IN ROMANIA - DYNAMICS AND STRUCTURAL CHANGES IN THE PERIOD 2007-2020

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Abstract

The paper analyzed the evolution animal sector regarding livestock and production in Romania in the period 2007-2020. Two sub-periods: P1- 2007-2013 and P2 2014-2020 were compared for assessing if the achievements in P2 were superior. The data from the National Institute of statistics regarding livestock and production by species were processed using fixed basis index, structural index, regression equations, coefficient of determination, multi annual mean per decade, absolute and relative differences between P2 and P1, in order to emphasize the trends and changes during the studied period. The results emphasized the following: the number of bovines, pigs and poultry decreased, while the number of sheep and goats and bee families increased both in P2 and P1. The total animal live weight at slaughter diminished due to the lower and lower live weight of bovines and pigs. However, the increased live weight at slaughter of sheep, goats and poultry had a positive impact. Milk and egg production declined and continued in P2, while wool and honey production increased. Despite that agricultural production value in animal sector increased by +20,420 trillion Lei in 2020 versus 2007, it was by 68.61% smaller than the agricultural production value achieved in the vegetal sector. In consequence, the contribution of animal sector to agricultural output was just 31.39% in the year 2020. The gaps in domestic production have to be covered by imports to meet consumers' requirements and this will deepen the deficit in agro-food trade balance. The reduction of CO₂ emissions in agriculture, where 50% come from animal sector, obliges farmers to set up strategies destined to promote animal products obtained from more environment friendly technologies.

Key words: animal sector, livestock, production, contribution to agricultural output value, structural change.

THE EFFICIENCY OF THE EUROPEAN UNION AGRI-FOOD TRADE IN THE DECADE 2013-2022

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Abstract

The paper analyzed the EU agri-food trade based on Eurostat data in the period 2013-2022 in order to establish in what measure its commerce is efficient in terms of total trade, export, import, coverage ratio, trade-to GDP, export ratio, net export, share of groups of products in export and import value, growth rate and regression equations. The results highlighted an increase in agricultural output value by 33.77% which enhanced export. The total agri-food trade increased by +61.3% in the analyzed interval, accounting for Euro 424.6 Billion in 2022. Export value reached Euro 229.1 Billion in 2022, being by 58% higher, while import value raised by 65.53%, attaining Euro 195.5 Billion. Net exports were positive and varied between Euro 25.6 Billion in 2015 and Euro 46.9 Billion, the peak attained in 2021. Also, the coverage ratio was over 100% in the whole interval. The exported amounts were higher than the imported ones till 2016, but then imports exceeded exports, except the year 2021. The average export price was superior to the average import price every year. In the analyzed interval, the average export price increased by 37.13%, while import price by 25.71%. Export ratio was over 100 ranging between 119 in 2015, 131 in 2020 and 117 in 2022. The variations in export and import quantities and values produced changes in the share of the groups of products reflecting that in 2022, the hierarchy for export was: Foodstuffs, Animal products, Vegetal products, Fats and Oils, and for import: Vegetal products, Foodstuffs, Animal products and Fats and oils. A positive trade balance and coverage ratio over 100 were found in case of Animal products and Foodstuffs, and a negative trade balance and a coverage ratio below 100 was registered for Vegetal products and Fats and oils. Agri-food export accounted for 42.9% in agricultural output value in 2022, but the peak was 44.6% in 2018. The regression equation $Y = 0.5259 X - 46.0376$ shows that an increase by Euro 1 Billion in agricultural output value could raise export value by Euro 0.52 Billion.

Key words: agricultural output, agri-food trade, net export, coverage rate, groups of agri-food products, EU.

STUDIES ON THE CORRELATION BETWEEN EXPLOITED AREAS ALONG CROP STRUCTURE AND THE MAIN ECONOMIC-FINANCIAL INDICATORS

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Abstract

The present paper addresses a topical issue for the agricultural production sector and it is based on an economic-financial indicators analysis for a series of 17 main agricultural crops. The practical research was carried out with information and data for 10 agricultural holdings in Iași County. They operate in the vegetable production sector and have a solid commercial representation on the national market. The main indicators used in the study are: crops and shared areas for each of the 10 analyzed units, considering the relevance of crops for the national economy and economic-financial indicators relevant for the design of the production activity: turnover, profit, employes number. The reference year for which the research was carried out is 2021. The work methodology mainly uses quantitative methods and descriptive analysis, with the processing and interpretation of data that have been organized in a design configured according to the specifics of the paper. In addition, qualitative information collected through interviews is used. The results of the paper indicate the relevance of basic agricultural crops for the performance of large enterprises.

Key words: production, agriculture, profit, financial indicators analysis.

**SUBSECTION
FARM AND COOPERATIVES
MANAGEMENT**

THE EVOLVING STATE OF AGRI-FOOD SECURITY IN THE REPUBLIC OF MOLDOVA - A REVIEW

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Abstract

Moldova faces substantial agri-food security challenges, including the availability, accessibility, and affordability of safe, nutritious food for its population. With high poverty rates and a large rural population relying on agriculture, Moldova's agricultural sector has small landholdings, low productivity, and insufficient investment in modern technologies. Climate change and extreme weather events have led to declines in agricultural production and increased dependence on imports for food needs. The recent COVID-19 pandemic and regional conflict in Ukraine have exacerbated food insecurity, causing rising food prices and reduced availability. This paper uses a SWOT framework to analyze Moldova's agri-food security, identifying areas for improvement and potential strategies for enhancing resilience and sustainability. Findings emphasize the importance of integrated, multi-sectoral approaches, promoting sustainable agricultural practices, investing in modern technologies, and fostering collaboration among the government, international organizations, and stakeholders. By addressing these challenges and leveraging opportunities, Moldova can improve the long-term resilience and competitiveness of its agri-food sector while ensuring food security for its population.

Key words: *agri-food sector, Republic of Moldova, sustainable agriculture, supply chain, comprehensive approach.*

**ANALYZING PRESENT AND FUTURE CONNECTIONS
BETWEEN FARM MANAGEMENT AND PERFORMANCE:
COMPARATIVE STUDY USING STATISTICAL
METHODS AND SUPERVISED LEARNING**

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Abstract

The determination of the influences of the management on the economic performance of an agricultural holding can be an important process for the farm manager, as a source of information which can consist in a valuable component needed in the decisional process. In this matter, the analysis is useful during a specific period of time, which also comprises future predictions. In this paper, we will present a study of the connection between the farm management approach, represented by several characteristics of the farm and the farmer, and the farm economic performance, represented by the financial result of the farm activity. This study is presented as a comparative analysis of two methods that establish the existence and intensity of the mentioned connection, the first one being based on statistical methods and instruments and the second one being based on machine-learning based tools, specifically supervised learning. This study aims to find alternative means of studying causal implications of the management type on the economic activity within a farm, based on digital-based tools. The obtained results for the mentioned research showed that the methods based on supervised learning can be an important tool of analysis, being complementary with the traditional statistical methods regarding the analysis of the microeconomic agricultural environment and performance, providing supplementary key data regarding the economic indicators.

Key words: farm, manager, supervised learning, regression.

STUDIES ON MINIMUM WHEAT TILLING

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Abstract

The development of alternative soil tillage technologies, which ensure the conservation and maintenance of its productive capacity as well as the reduction of energy consumption per unit of processed area, is today a necessity in developing a sustainable agriculture. The study presented in this paper was carried out in the area of Oravița, Caraș-Severin County, Romania, and refers to the minimum tillage technology in wheat culture. The study points to the unfavourable effect of intensive soil works - classic (conventional) system - on soil erosion. This has led to the development of some research oriented towards new technologies of soil working in the conservation system. The purpose of this paper is to promote the introduction of alternative technologies in agricultural works, by dealing with the main technical, economic and environmental aspects that compete for the achievement of efficient agriculture. From an economic point of view, this method is less expensive because fuel consumption and machine working time are reduced. The use of modern mechanization technologies has a great economic efficiency due to the following aspects.

Key words: economic efficiency, soil, minimum tillage, production capacity.

STATE AND DYNAMICS OF LAND RELATIONS IN BULGARIA - A REVIEW

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Abstract

The institutional environment in Bulgarian agricultural sector is a complex system of relationships, dynamically changing under the influence of national and sectoral legislation. Over the last 16 years, was characterized as a difficult period for agriculture and land relations in Bulgaria - because of insufficient legislation the Ownership and Use of Agricultural Land Act about 34 changes have been made to the Act, which are directed in the interest of agricultural users. The changes made concern the concluded contracts for the use and lease of the agricultural land. The dynamics and future changes in land relations are inextricably linked to changes in European and national policy. Receiving European subsidies and financial support to the income of Bulgarian farmers deforms the economic environment in our country. The European subsidies are a key motive and priority for farmers. The purpose of this paper is to describe the state in Bulgarian agricultural sector which is characterized by intensity and dynamics, more complexity and instability. The value of the gross agricultural output had declined during the last years. This research work is based on the following methodological approaches: complex, structural and comparative. The theoretical framework of this article provides a summary overview of the main institutional changes in the agricultural policy and the structure of land relations in Bulgaria. For the purposes of the research different information sources have been used - scientific journals, as well as the author's own research.

Key words: land relations, state, agriculture.

FISHERIES AND AQUACULTURE IN ROMANIA. A GLOBAL OUTLOOK ON SUSTAINABLE DEVELOPMENT

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Abstract

The paper proposes an analysis of the fishing sector in Romania, from the perspective of the exploitation of natural resources. Romania's hydrographic network represents over 3.5% of the country's total area. Fishing and aquaculture are activities carried out in all regions of the country. In the areas along the rivers and the Black Sea, fishing is the primary source of income for the population of the region. In the last decades, fish production from aquaculture has regularly exceeded the catch. Romania's foreign trade with fish and aquatic products has an unbalanced balance, with a significant dependence of the domestic market on imports. The average annual fish consumption per capita in Romania is below the European average, although a positive evolution has been recorded in the recent period. The implementation of European projects by the companies operating in the Romanian fishing sector is difficult, the degree of access to the funds available to the domestic sector being characterized by a relatively low level of absorption. The lack of effective measures from the public authorities to support the national fishing sector will accentuate its decline, and the domestic market's dependence on imports from abroad will continue to grow. The research results can be useful to companies in the fishing sector, for accessing European funds, and to public authorities, in developing appropriate public policies and strategies.

Key words: fish market, Romania, fish farms, aquaculture, strategies.

**SUBSECTION
AGRICULTURAL AND RURAL
POLICIES**

VARIATION OF FLOWER QUALITY IN *Liatris spicata* IN RELATION TO PLANTING DATE AND FERTILIZATION SYSTEM

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Abstract

The study evaluated the quality of the flowers of the species *Liatris spicata* (L.) Wild., in relation to the date of planting and the fertilization applied. Planting was done at three different times, March 6 (PD1), March 13 (PD2) and March 20 (PD3). At planting, and at the formation of the floral stem, vermicompost type fertilizers were applied, in solid (VC-S) and liquid (VC-L) form, independently and in combination (VC-S/VC-L). Nine experimental variants resulted, including the control variant (T1 to T9). At the time of flowering, plant height (PH), flower stem length (FSL) and spike flower length (SL) were evaluated. The highest value for plant height was recorded under the conditions of planting date PD1 and fertilization VC-S/VC-L (T1), $PH = 52.05 \pm 1.11$ cm. In the case of flower stem length (FSL), the highest value was in the PD1 variant with VC-S/VC-L fertilization (T1), $FSL = 42.70 \pm 1.44$ cm. The highest value for the length of the spike-shaped inflorescence (SL) was recorded for variant PD2 with VC-S/VC-L fertilization (T4), respectively $SL = 9.95 \pm 0.37$ cm. Polynomial equations of the 2nd degree described the variation of SL in relation to PH ($R^2 = 0.968$, $p < 0.001$) and FSL ($R^2 = 0.862$, $p = 0.00264$). According to PCA, PC1 explained 92.907% of variance, and PC2 explained 7.093% of variance. Regression analysis was used to evaluate the variation of SL in relation to PH and FSL, as a direct and interaction effect. 3D and isoquants models, plane format, were obtained to describe the variation of SL in relation to PH and FSL.

Key words: flower quality, *Liatris*, model, ornamental plants, vermicompost.

TRACEABILITY OF AGRI-FOOD PRODUCTS

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Abstract

Traceability of agri-food products refers to the ability to trace the history of a product through records related to identification data, such as the origin of the materials, the history of processing and the distribution and location of the product after delivery. The purpose of this paper is to highlight the importance of traceability systems in the agri-food sector and provides an overview of the project Strengthening the capacity of the Ministry of Agriculture and Rural Development to develop specific policies and regulations in order to implement a national strategic system for the traceability and integrity of agri-food products. The results were concluded based on bibliographic study, analysis and interpretation of relevant databases and evaluation of the activities performed during the project. Through the activities carried out within the project, the aim is to achieve the following results: a package of public policy proposals, active fund of the simplified legislation, regulations to reduce the administrative burden, procedures for reducing bureaucracy in citizen-public institutions interaction, transfer of knowledge and creation of new skills for MARD in order to manage public policies.

Key words: origin identification, differentiation, attributes, product trail.

BULGARIAN AGRICULTURAL STRUCTURE AND PROSPECTS POST-2023

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Abstract

The CAP 2013 reform aimed to achieve ambitious goals - more equality in the distribution of financial support, better targeting and „greening” of direct payments. The aim of the study is to outline the changes in Bulgarian agricultural structure and to formulate recommendations for the post-2023 period. The results show that in Bulgaria, during 2010-2020, the number of agricultural holdings decreased by 64%, and the farm structure was seriously transformed. The trends of land concentration and polarization are continuing, although the European and national policy priorities are directed at overcoming the imbalances and differences. These land concentration processes are accompanied by accumulating a significant share of direct payments in large holdings. The transformations in farm structure could lead a significant challenge in the context of future Bulgarian agricultural development, food security and livelihood in rural areas. The flexibility and subsidiarity proposed by the CAP allow the EU Member-states to set their priorities and direct financial support to crucial sectors according to national specifics. However, financial aid should be better targeted, and the capping and payments reduction need to be more efficient.

Key words: farm structure, land concentration, direct payments.

**GENERAL CHARACTERISTICS OF THE RURAL SPACE
IN THE REPUBLIC OF MOLDOVA - ESSENTIAL FACTOR
FOR THE PURPOSE OF PERFORMANCE
REGISTRATION BY THE MANAGEMENT OF THE
LOCAL PUBLIC ADMINISTRATION**

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Abstract

The knowledge, research and continuous development of the rural space is of increased interest for the academic environment in a country with imposing dimensions of the countryside such as the Republic of Moldova, dimensions marked both by the areas belonging to the rural environment and by the share of the population from villages. Despite a rapid urbanization, caused by the unprecedented industrialization of the second half of the 20th century, which generated not only a reduction in the share of the population employed in agriculture, forestry, fish farming, but also significantly decreased the share of income collected from agricultural activities in GDP, the importance of the rural space does not decrease, it is imposing itself more and more, including through the global trend of protecting the environment and capitalizing on the picturesque places available to the countryside. Humanity has set as its objective the greening of social and economic life, and the rural environment is of crucial importance in achieving it.

Key words: management, Moldova, public administration, rural space.

A VALUE CHAIN ANALYSIS OF ORGANIC VEGETABLES: A CASE STUDY OF ROMANIA

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Abstract

Nowadays, more and more people are concerned, at least at the declarative level, with adopting a healthy lifestyle. As people become more and more aware of health issues, environmental protection and climate change, it encourages them to switch to organic food. Among the main organic products consumed are vegetables due to the major source of vitamins and minerals. The paper aim to perform a value chain analysis o of organic vegetables in Romania. This study presents the results of the value chain analysis of organic vegetables in two aspects, i.e. mapping of the chain and governance structure. Primary data is collected throygh an interviews from key chain actors. The research shows that the value chain of organic vegetables in Romania is simple and short, having in most cases only one distributor between the producer and the final customer. The study will help key actors to identify the various gaps in the existing chain and find solutions to improve them.

Key words: Mapping, organic vegetables, Romania, value chain analysis.

BIRTH RATE IN RURAL AREAS OF BULGARIA FOR THE PERIOD 2011-2021, ACCORDING TO NUTS 1

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Abstract

In the modern Globalized world, the migration movement is accompanied by a population of childbearing age, which in turn gives rise to a geo-demographic birth rate process. The study examines and analyzes the birth rate process on the territory of Bulgaria within the framework of the last two censuses. The aim is to apply a comparative analysis of the process in rural areas related to the results obtained, the deductions and the conclusion, applying the European classification NUTS 1. The research uses the National Methodology for the study of fertility and the application of the fertility rate. The ratio between rural areas during the study period will present the real geo-demographic picture of the country. The study includes the mechanical movement and the birth rate as geodemographic processes in the rural areas of Bulgaria according to the NUTS classification for a certain period of time. In the conclusion, conclusions are drawn based on the analysis and results, and recommendations for a future period of time are also given.

Key words: fertility rate, mechanical growth and classification NUTS.

**INDEX OF LOCATION OF EMPLOYED PERSONS
AND PART OF NON-AGRICULTURAL ACTIVITIES
IN THE RURAL AREAS OF SOUTH CENTRAL BULGARIA
(IN THE CONTEXT OF SOUTH-CENTRAL REGION)**

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Abstract

Rural areas with specific socio-economic activities within the EU RDP, and in particular for Bulgaria, are the main subject in the above-mentioned program in the new framework period 2021-2027. The study examines part of the non-agricultural activities in the field of Services - Hotel and restaurant business (I), Construction (F) and Transport, warehousing and post offices (H) in the South-Central Region (SCR). A deductive, comparative method is applied, as well as an Index of localization (IL), including: enterprises, number of labor units working in the relevant subsector. An analysis is made of the derived location index, comparing the different activities to the considered territories according to the NUTS classification. The conclusions and generalizations are based on the results obtained and their relation to the EU CAP.

Key words: location index, rural area, non-agricultural activities, district.

AN ANALYSIS OF ENERGY USE AND INPUT COSTS FOR RADISH PRODUCTION IN TURKEY

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Abstract

This research aimed to determine the comparison between the cost of energy and the cost price of producing radishes in Osmaniye Province in Turkey, which is an important source of income in agriculture in Turkey. A questionnaire was used to collect data on radish production from the intended target population 149 radish farms in 2019. The sample was calculated using Neyman's method. Based on a sample size the error was defined as 5 percent for 95 percent reliability. The socio-economic characteristics of the farmers were used to present analysis and also secondary data were also used in the research to deepen our knowledge. The results showed that the input energy was 2,946.574 MJ da⁻¹, of which the highest share was related to deep plowing, irrigation, first watering after transplanting, and second plowing with 21.60, 20.07, 19.84 and 12.08%, respectively. The lowest input was belong to Harvest and Packaging with 0.03%. Labor cost (70.75%), fuel cost (14.41%), and material used 14.84%. In addition, the production cost and sales price (\$/ ton) of radish are obtained at 21.69 and 40.21 respectively. We find that the rate of profit from agricultural income was 87.82% while that of energy was 61.38%.

Key words: energy, radish production, input, Turkey.

EVALUATION OF LAND CONSOLIDATION WORKS IN TERMS OF LEGAL RESULTS: THE CASE OF ADANA PROVINCE, TURKIYE

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Abstract

Land consolidation is the rearrangement of small, fragmented, and scattered land owned by agricultural enterprises. The data of the research was collected from the lawsuit files related to the land consolidation works carried out in Yüreğir district of Adana province on 23/11/2012, records of the 6th Regional Directorate of State Hydraulic Works (DSI) which carried out the consolidation and academic studies related to the subject. It is aimed to use less time, labour, and capital, increase agricultural production and productivity, and raise living standards. However, it is important to ensure satisfaction of farmers to provide these benefits. This study evaluated the problems caused by land consolidation from a legal point of view. This research found that the number of parcels of enterprises decreased, the size of the parcels increased, and the parcels received road, water, and drainage services. However, a significant number of producers were not satisfied with the land consolidation and filed lawsuits in the administrative courts. This study revealed that attentive consolidation and careful use of authority can increase satisfaction and prevent unnecessary busying of the courts, saving time and expense.

Key words: land consolidation, politics, Turkey.

ECONOMIC ANALYSIS OF THE TYPICAL RURAL AREAS IN BULGARIA

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Abstract

Rural areas are taking an important and significant share of the EU. Bulgaria is not an exception and it is important to periodically review and analyze Rural areas` progress on certain parameters, such as GDP per capita, foreign direct investments, tangible fixed assets acquisition costs, coefficient of economic activity, etc. The main goal of this article is to review the progress for a period of 5 years in the typically Rural areas in Bulgaria according to classification NUTS 3 and draw possible future goals for better regional and rural development. The research is based on the official national statistics in Bulgaria and Eurostat. After processing the data, main results are showing higher statistical values in some of the analysed parameters, like GDP and average output of non-financial enterprises. We can conclude that even these results are better in last few years, there is need of more stable tendency, so we can consider the typical rural areas as fast developing regions in Bulgaria.

Key words: Rural areas, Bulgaria, GDP.

LAND CONSOLIDATION IN TURKEY - A MULTIPURPOSE/DISCIPLINE LAND CONSOLIDATION IN TURKEY WITH ICT SUPPORT 2023

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Abstract

The goal of the study is to reorganize agricultural business management's owning small, fragmented, and dispersed lands according to modern agricultural business management thus ensures less usage of time, labour force and fund, take advantages of production factors and increase in productivity of agricultural business managements, increase agricultural production, and ameliorate life standards of inhabitants in the rural area. The paper is based on a large literature in the field and information from TVK about land consolidation. The results reflected that Turkey has implemented Land Consolidation activities for 1 million hectares per year to correct the unfavorable situation caused by inheritance traditions and other reasons. In the first years of the program, inheritance regulations were not perfectly organized, so applications encountered issues. In 2014, new regulations were implemented to prevent land division but did not have a beneficial effect on the development of enterprises. To ensure compensation for land value when they move away, Land Banking applications are needed. The Ministry of Food, Agriculture and Livestock developed a GIS based web portal named “TVK” to track and monitor all the activities performed during the management of Land Consolidation Projects. TVK ensures following content to be executed: Contract Management, Project Management and Monitoring, Schedule Planning and Monitoring, Operation Management and Monitoring, Data Management (Textual and Geographical), Estimated Cost Calculation for a LCP by using unit price pool, Progress Payment Management and Monitoring, Final Account Calculation, Interim and Final Acceptance Procedures, Official Letters, Official Reports, Project Statistics, Geographical Data Marking, Correction, Comparison, Redlining, Mobile applications and E-government integration. TVK has instant and online access to governments Land Registry and Cadastre Information System, Central Population Information System, Address Registration System, Agricultural Information System and Agricultural Parcel Information System. TVK is developed with open-source technologies and compatible with OGC (Open Geospatial Consortium) and ISO standards.

Key words: land consolidation, multipurpose, discipline, TVK, Turkey.

PROFITABILITY OF PRODUCTION OF TABLE GRAPES IN REPUBLIC OF MOLDOVA

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Abstract

Viticulture for table grapes is a branch of the agro-industrial complex, which possesses high adaptability to environmental conditions, relatively simple care and high economic efficiency, etc. For each economic agent, economic efficiency expresses the need for existing factors of production to be used under conditions of economic rationality, which means that unlimited needs are satisfied with increasingly limited resources throughout the economy. This paper presents the economic efficiency of table grape production. We can state that any economic activity must produce useful and qualitatively superior effects, satisfying the principle of rationality applied to the present time and to the future, thus ensuring the prerequisites for future efficiency. The research was carried out on the basis of data from the National Bureau of Statistics and reports from the Ministry of Agriculture and Food Industry, using methods of analysis, synthesis, tabulation and graphics. The vitivinicultural sector is and will remain an important one for the Republic of Moldova. High-quality grapes and wine are the calling card of our country, recognized internationally. Dynamically, in the years 2010-2018, the viticultural sector registered an average annual increase of 6.2% - the productivity of the vineyard per fruiting; 8.4% - the harvest of table grapes; 7.1% - export of table grapes.

Key words: viticulture, table grapes, return, economic efficiency, Republic of Moldova.

ORGANIC FARMING SUPPORT POLICY IN MOLDOVA

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Abstract

In Moldova, the adoption of the Law for Ecological Agri-Food Products (2005) and the Law on Subsidizing Principles in Agriculture and Rural Development (2016) contributed to the beginning of government support for organic farming. The objective of this paper is to examine the influence and effectiveness of support policies for the growth of organic farming. The legal documents for the programs and policies adopted are the framework for the data analysis. Secondary data from the Agency of Interventions and Payments in Agriculture (AIPA) regarding the number of applications, converted area, and analysis of allocated subsidies for organic agricultural development were used for the impact analysis. Due to differences between national legislation and European policies, local ecological certificates are not recognized on the E.U. market, which creates challenges for export under the organic label. This is a major issue for the development of organic farming in Moldova. The lack of control capacity of conversions, certification of technologies, raw materials and organic products, and few professional trained workers in organic agriculture cause additional problems to farmers restricting the expansion of ecological agriculture in Moldova.

Key words: *ecological agriculture, organic farming, subsidies.*

**SUPPORTING THE RURAL ENVIRONMENT IN
ROMANIA THROUGH FINANCING FROM EUROPEAN
FUNDS IN THE TRANSITION PERIOD 2021-2022**

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Abstract

The continuation of financial assistance for Romanian farmers and entrepreneurs from rural areas during the years 2021-2022, which will serve as the CAP's transitional years, has been regulated at the EU level. From the standpoint of financing the rural area in Romania, the current article intends to highlight the contribution of the National Rural Development Program's initiatives throughout this period. The measures that could be accessed during the transition period are synthetically presented. The support granted to the Romanian agricultural and non-agricultural sector will increase the degree of modernization of farms, their expansion and development, will support the installation of young farmers who start an agricultural activity for the first time as holding managers and the development of farms led by young people who were installed during previously, diversifying the valorization of agricultural production as well as supporting the implementation of actions within local development strategies. The National Programme of Rural Development (NRDP) budget for the transition period 2021-2022 was approximately 3.26 billion euro, and the funds must be spent by December 31, 2025 at the latest.

Key words: rural development; grant funding, Common Agricultural Policy, transition period 2021-2022.

**EUROPEAN STRUCTURAL FUNDS
IN ROMANIA: ABSORPTION AND IMPACT
ON THE AGRICULTURAL SECTOR**

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Abstract

The paper proposes an analysis of the effective rate of absorption of European Structural Funds in Romania, allocated to the national agricultural sector, in the period 2019-2022. The research was carried out on the basis of the official information, provided by the Romanian and European statistical systems. National Institute of Statistics and the Ministry of Agriculture and Rural Development. The results of the research show a strong correlation between the effective absorption rate of the European Structural Funds and the total net investments in the agricultural sector at the national level. Agriculture can be considered as a model for the other domestic economic sectors from the perspective of the degree of absorption of European funds. Considering the importance of the agricultural sector, it is necessary that the value of net investments increases, regardless of the source of financing used, but above all that farmers make the most of the opportunity to access non-reimbursable structural funds.

Key words: European Structural Funds, agriculture, absorption rate, investments, Romania.

GREENING POLICIES FOR THE AGRICULTURAL SECTOR OF THE REPUBLIC OF MOLDOVA: CURRENT SITUATION AND FUTURE PERSPECTIVES

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Abstract

Agricultural sector of the Republic of Moldova is currently facing a series of challenges, an important part of them being related to the greening of the sector. The existing public support schemes for greening agriculture are more related to mitigation of the climate change effects, with less focus on preserving the environment, and their share in the total public support is relatively low. The paper aims to analyze the existing public support schemes related to climate change adaptation and greening of sector and provide a series of recommendations for their improvement. In order to achieve the main aim of the paper, the following scientific methods have been used: generalization of empirical and applied material, induction and deduction methods for making the paper conclusions, comparison method and analytical one. In order to be in line with current greening EU policies, Republic of Moldova must adapt some of its public support schemes for the agricultural sector and pay more attention to development of a coordinative mechanism and advice services.

Key words: agriculture, greening, policies, public support.

QUALITY FOOD PRODUCTS REGIONAL POLICY. CASE OF AGROTRANSILVANIA CLUSTER, ROMANIA

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Abstract

Particularly traditional foodstuffs could be exploited for branding and marketing and are essential for authenticating a national or ethnic culture. It has been referred to as `culinary nationalism` or `gastro-nationalism` when nations assert ownership of particular foods and give them institutionalized protection. The European Union (EU) has developed quality schemes as legal mechanisms for controlling ownership and control over certain food products in the context of the globalized food market. The purpose of this qualitative case study is to identify the specific certification schemes to integrate Romanian traditional agri-food products with focus on the study case of AgroTransilvania Cluster, where under the umbrella of the Cluster were created 4 voluntary certification schemes. To measure the impacts of these voluntary certification schemes had to be into consideration the position of the state institutions, the interpretation of traditional products by different national actors, and producers' intentions. Certification schemes and Food security works hand in hand which bring us to the conclusion that certificate products are more reliable to human consumption and friendly with the environment than the conventional ones.

Key words: traditional products, voluntary certification, national regulations, cultural heritage.

RESEARCH ON CLUSTERING CONDITIONS IN SOUTH AFRICA

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Abstract

Initially, clusters focused on creating a framework for cooperation between economic actors, research institutes, and public authorities from the same geographical concentration. Considering the European cluster model as a way of developing solid cooperation, the same steps were presented to find the interest of South African's economic actors in developing a feasible partnership model. This includes analyses on a wider scale, such as the degree of development of the compared countries where the model was implemented, the particularities and political priorities, the fields of activity. Going forward, the next steps that can be done are: mapping the existing clusters and their operating characteristics, assessing the regional business environments and the degree of competitiveness. After carrying out the analysis, there is concern about whether this concept can be implemented in countries like South Africa. Additional investigation will focus on other elements that affect the model's successful application.

Key words: *clusters, competitiveness, cooperation, environment, impact, South Africa model.*

RESEARCH ON WINTER WHEAT, CORN AND SUNFLOWER CROPS PROTECTION IN ILFOV COUNTY RESPECTING NATIONAL LEGISLATION

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Abstract

Plant health (in this case winter wheat, corn and sunflower crops) is fundamental to the sustainability and competitiveness of agriculture, food safety and environmental protection. Currently, modern winter wheat, corn and sunflower crop protection strategies are focused on combating harmful organisms (diseases, weeds and pests) that cause quantitative and qualitative losses to these crops. The research in this paper focused on the presentation of all plant protection products applied to wheat, corn and sunflower crops by 50 farmers from Ilfov county in the 2019 agricultural year. The assortment of fungicides, insecticides and herbicides used is extremely varied. We also made observations in the field to identify which diseases and pests were present in the crops and consulted the farmers on the extent of their control. The degree of attack of powdery mildew, two weeks after the application of the treatments, was calculated based on the incidence and severity of the diseases. The diagnosis of diseases was made by visual observation of the typical symptoms of their manifestations. Information from farmers was obtained on the basis of questionnaires. Total control of weeds in farmers' crops was provided by an assortment represented by 8 wheat herbicides, 2 sunflower herbicides and 10 maize herbicides. Due to environmental concerns and concern for human health, the application of products for the protection of wheat, corn and sunflower crops was done taking into account good practices in the context of promoting integrated management of diseases, weeds and pests according to European directive 2009/128/EC.

Key words: *plant health, diseases, weeds, pests, crops protection products, wheat, corn, sunflower.*

RESEARCH ON THE IMPORTANCE OF PROFESSIONAL TRAINING AND SPECIALIST ADVICE FOR FARMERS - A STUDY CASE REGARDING PLANT PROTECTION IN TOMATO GROWING IN GREENHOUSES

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Abstract

Professional training and consulting systems in the field of plant protection, and not only, are of particular importance for our country in the context of agricultural policies developed at the level of the European Union. The particularities specific to the implementation of community policies in Romania must be reflected in the level of specialization of agricultural specialists regarding their skills. Agricultural consultancy services represent a vital element in the field of informational and technological transfer in agriculture, providing farmers with information that can contribute to improving their standard of living and that of the rural population. From the research carried out, it appears that Romanian farmers need specialized consultancy in three directions: 1) preparation for accessing European Rural Development Program funds; 2) streamlining plant and animal production; 3) facilitating access to consultants on legal issues, cadastre, feasibility studies, marketing, management, etc. The paper also presents results regarding plant protection products used by farmers in Ilfov county in 2020. The purpose of the paper is assess the farmers knowledge where they could find valuable information to their problems regarding plant protection as reflection of their training level and of the efficiency of the consultancy system in Romania. The working method consisted of a sociological survey and an opinion poll. For technical advice, 28.0% of the surveyed farmers would turn to the Agricultural Directorate. For the use of plant protection products, 51.0% of farmers turned to their delivery company. An important shoulder of farmers, 71.0%, are not aware of the National Action Plan regarding the reduction of risks associated with the use of plant protection products. Most of the farmers, 45.0%, would turn to a private consultant to receive support in accessing European Rural Development Program funds.

Key words: consultancy, vocational training, farmers, plant protection in tomato growing.

SYSTEMS FOR THE DEVELOPMENT OF THE GOAT REARING SECTOR FOR MILK PRODUCTION

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Abstract

Along with the increase in the number of animals, the number of animal farms specialized in the production of goat milk also increased, the number of farms equipped with mechanized milking systems, milk pasteurization lines, pasteurized milk bottling, combined slaughterhouses, etc. increased. The aim of the paper is to demonstrate sustainable development as one of the current requirements of the economic efficiency of livestock farms, by ensuring the complete value chain with complex and perfect inputs. The methods of observation, monograph and comparison were used in the elaboration of this work. The data presented in the respective work were accumulated from the statistical researches of the husbandry entities in the country, the official data of the National Bureau of Statistics of Moldova and from the dedicated works on this topic. The results pursued in this research point to the identification of the economic capacities of the goat breeding sector in the Republic of Moldova by making investments in the dimension of increasing the gross added value of the business. The research conclusions allow us to state the availability of reserves by tracking the quality and quantity of production determined by increasing the contribution to the value of production.

Key words: goat sector, profitability, commodity production, efficiency, breeds, fodder, processing.

**OSMOSIS BETWEEN HUMAN CAPITAL
AND DEVELOPMENT AND ITS IMPACT
ON THE 21st CENTURY ECONOMY - A REVIEW**

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Abstract

In the knowledge-based economy of the 21st century, educated human resources are seen as a capital asset invested in the entity, and human capital theory seeks to explain, from an economic perspective, the phenomena arising from this process. The development of education and scientific spheres requires huge long-term investments, which must be analyzed from a social approach. Neither evaluation experience nor the methods applied provide a clear-cut solution, so evaluating an investment in human capital is a complex problem from both a practical and a scientific point of view. This research started from the hypothesis that investing in human capital will provide competitive advantage and sustainability in the complex world of the economic environment, reviewing the theory and evidence on the economics of human capital. Triangulation was chosen as a research method being considered the most adequate for the expected results and additionally because it allows to identify the most relevant aspects of this field that endorsed the proposed hypothesis. The main conclusion and results are that the emphasis has been placed on human capital just at the personal level, rather than at the level of unity and organization. Furthermore, research into the channels that have a causal effect on development has revealed that education is considered an instrument of developing human capital that promotes direct economic growth. Data analysis demonstrates that the theory of human capital is a convincing explanation for economic growth. In addition, the findings of the research have shown that the debate over equality vs. efficiency in economic development is centred on the human capital dimension.

Key words: *knowledge-based economy, human resources, economic development.*

**SOCIO-ECONOMIC IMPACT OF
THE EARTHQUAKES OF FEBRUARY 2023
ON AGRICULTURAL PRODUCTION OF TÜRKIYE**

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Abstract

In order to determine and analyse the socioeconomic impacts on agricultural production of the 2 earthquakes with magnitudes of 7.4 and 7.3 that occurred in Turkey on February 6, 2023, a research survey was conducted and the data obtained from the surveys were evaluated. The survey was carried out in 15 villages in total, in 3 villages selected to represent each of the 5 districts where the earthquake was intensely felt. According to the results, besides the loss of life and property in rural areas, the earthquake had a significant impact on production factors, especially the stock of warehouses, tractor capital, manpower, and caused disruptions in supply chains and delays in agricultural activities.

Key words: earthquake, socio-economic impact, agricultural production, Türkiye.

STUDY ON THE EVOLUTION OF FAIR TRADE AND ITS ROLE IN SUSTAINABLE DEVELOPMENT

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Abstract

One of the great current challenges at the global level is represented by finding sustainable production systems that ensure both social, economic and environmental sustainability, while at the same time pursuing the optimal provision of production, trade or consumption indicators. Globalization is the one that affected those producers who, not having access to alternative markets, had to sell their goods at much lower prices, thus making the very principles of equity and efficiency affected. The solution was represented by the practice of fair trade and the application of sustainable supply systems, which represent ways to solve these shortcomings. This paper analyzes the situation of fair trade worldwide and its evolution for the period 2012-2020. The research methodology assumed the collection of data, their processing and analysis with the help of some statistical indicators such as: the number of Fairtrade organizations, the number of Fairtrade farmers, the number of workers in Fairtrade organizations, the proportion of women involved in Fairtrade activities, the areas intended for obtaining Fairtrade productions, Fairtrade productions, premiums granted in Fairtrade. The data highlighted the fact that worldwide, during the analyzed period, there was a continuous increase in fair trade, the increase being over 65% in terms of the number of producer organizations. The number of farmers reached over 1.77 million in 2020, this being the result of understanding the role of affiliation to this form of trade. The largest number of producers participating in fair trade are producers of coffee, tea or cocoa, their share being, in the analyzed period, between 86-92%. The paper highlights the fact that the emergence and development of fair trade represented a way of supporting farmers and agricultural workers in developing countries, this can be done both by the political environment, but also by society. Although the application of these measures has contributed to the increase in the standard of living, to the respect of the rights of farmers and workers, equally with the principles of sustainable development, the weight of fair trade in all trade, proves the fact that it is still carried out on a small scale, as there is a need for the development yes, with the aim of reducing global poverty.

Key words: fair trade, sustainability, profitability, globalization.

IMPACT OF RURAL DEVELOPMENT PROGRAMS IMPLEMENTATION ON THE ECONOMIC AND SOCIAL EVOLUTION OF THE RURAL COMMUNITIES IN CĂLĂRAȘI COUNTY, ROMANIA

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Abstract

Through this study, we have proposed as an objective, an evaluation of the impact that rural development programs have on the economic and social development of the rural environment, carrying out a case study in Călărași County. Thus, we monitored the extent to which the funds accessed by the Călărași County Council corresponded to the objectives assumed by our country through the Partnership Agreement with the European Union, respectively, whether the financing measures corresponded to the rural development needs of the analyzed county, through the portfolio of implemented projects in the programming period 2014-2020. The investigation methods used in the analysis process were, on the one hand, of a theoretical nature - consisting in the study of the specialized bibliography in the field of public administration, of funding programs from European or national non-reimbursable funds, but also of a practical - application nature - consisting of data collection, their analysis and processing in order to identify projects and financing programs from the portfolio of the Călărași County Council for the evaluation of the impact their implementation had on the overall development of the rural area of the county. Through this approach, we appreciate that the county institution is concerned with accessing non-reimbursable funds for the effective development of rural communities, making its mark in the promotion of cultural and natural heritage, in the development of transport and tourist infrastructure, in anchoring rural communities to the European economic and social space. Although in recent years, Călărași county experienced an important development regarding the accessibility, as well as the infrastructure of utilities and public services, the county remaining deficient in terms of port infrastructure, connectivity infrastructure with Bulgaria across the Danube, wastewater collection infrastructure and of waste.

Key words: development, European financing, project management, objectives, strategy.

ANALYSIS OF SOCIAL ECONOMIC PROFILE OF RURAL AREA IN CĂLĂRAȘI COUNTY

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Abstract

Rural areas in Romania are affected by the significant lack of infrastructure and its deficiencies that have a deep impact both on the economic development and quality of life. According to the latest statistics, 42% of Romania population lives in villages. In the south of the country, 58% of the total population lives in the countryside, being the highest percentage compared to the other regions. Starting from this state of facts, in this study, we set out to make an x-ray of the social-economic profile of the rural environment in Călărași County by analyzing the structure and evolution of the number of agricultural companies, the cultivated area, the associative forms from the county, the labor resources employed in agriculture, but also the transport, education and health infrastructure. The analysis of the rural profile of Călărași County aims to formulate solutions and proposals in creating concrete conditions regarding the functionality of a socio-economic environment favorable to the consolidation of a sustainable and multifunctional development of the rural space. As research methods, we collected and descriptively analyzed statistical data, studied technical documents and specialized bibliography, and to analyze the state of the county's rural environment, we proceeded to develop a SWOT analysis. The overall analysis of the components of the rural area reveals that the prospects for the development of rural communities are affected by the economic, social and infrastructural backwardness of the rural area of Călărași County, but at the same time it has considerable advantages, as presented in the SWOT analysis, whose capitalization will have a significant impact on the future economic and social development of the rural area of the county.

Key words: analysis, rural area, poverty reduction, rural population, regional development.

**SUBSECTION
AGRIBUSINESS
AND AGRICULTURAL
EXTENSION**

STUDY OF THE POSSIBILITIES OF FINANCING THE AGRICULTURAL SECTOR IN BULGARIA

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Abstract

The need for government assistance in the external economy is necessitated by other economic uncertainties, the impact of agricultural activity on the environment, and especially low and irregular cash flows in the agricultural sector. The received state and European aid in the form of various economic losses are necessary for agricultural producers. Based on the financial resources provided, the company's financial condition is stabilized and improved. This embodies a management policy in the agricultural sector in Bulgaria. The aim of the study is to look for possible options for financing agricultural producers in Bulgaria. For the purposes of the study, the analyzed period is divided into several main groups according to Bulgaria's membership in the EU and implementation of the Common Agricultural Policy: Pre-accession, First program period (2007-2013), Second program period (2014. -2020) and the Third Program Period (2021-2027). Financing in the Agricultural sector is divided into internal and external. Internal financing refers to lending by banks and support through national surcharges, through the granting of state aid. External financing is the financial means provided to farmers by the European CAP programs (ISPA, SAPARD, RDP). Based on the analysis, it is found that the liabilities of the agricultural firms are growing faster than the assets, as farmers use more loans than savings to cover their financial needs, the small producers of the sector (under 20 ha) face the most many difficulties in obtaining financing. Subsidies are mainly received from large and major firms, while small and medium-sized ones that really need these funds remain disadvantaged. The granting of subsidies is associated with economic losses and very complicated programs, the implementation of which is tied to high public costs.

Key words: financing, subsidy, efficiency, agricultural sector, CAP, state intervention.

**A MATHEMATICAL APPROACH FOR
EVALUATION OF THE PURCHASED QUANTITIES
OF SEVERAL TYPES OF MEAT AVERAGE
PER HOUSEHOLD**

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Abstract

The current paper presents a mathematical approach for evaluation of the purchased quantities of several types of meat average per household in Bulgaria. The investigated groups of data are stored in a relational database. They include the following eight considered elements - pork meat, lamb meat, minced meat, poultry meat, mutton and goat meat, edible offals and bacon. Certain set of variables have been calculated and analysed during the studied period (2010-2021). The pace of change of the indicated variables has also been discussed for the mentioned years. It significantly supports users in decision making and presenting the obtained conclusions about the examined objects. The share of average purchased quantities per household for poultry meat is higher in comparison with that for the other investigated types of meat for each one year of the period. The pace of change of the examined indicator for the pork meat is comparatively more intensive in 2019-2021. Only, the values of this indicator for edible offals decreased continuously for ten of the considered twelve years.

Key words: approach, database, evaluation, quantities, types of meat.

THE ANALYSIS OF A COMPLEX COLLABORATIVE VALUE CHAIN. CASE OF AGROTRANSILVANIA CLUSTER

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Abstract

A multifaceted and flexible partnership established to support the growth of the agro-industrial sector has produced the Value Chain of AgroTransilvania Cluster. Its goal is to aid in the growth of the association's and each member's competitiveness on both domestic and foreign markets. The aim of the article is to propose and set up an adequate strategy for assuring the common development of the AgroTransilvania Cluster. The analysis of internal and external ecosystem of the value chain of the AgroTransilvania Cluster - the material studied - was scrutinized using SWOT Analysis, used, aftercall, as groundwork for TOWS Matrix, completed by PESTEL analysis. The needs of the members of the cluster were identified using Delphi method, through questionnaires. The final result consists in a strategic planning document, so its implementation was assumed by the cluster's members, assuring their involvement in joint, multi- and trans-disciplinary research, development, innovation, technology transfer, service provision, production, increasing visibility and not. The final aim of the strategy is to successfully generate the transition from an emerging cluster to an innovative one.

Key words: collaboration, agri-food, strategic development, agribusiness.

CONCEPTUAL ASPECTS OF THE GROWTH OF AGRICULTURE PRODUCTION BASED ON THE IMPROVEMENT OF SCIENTIFIC SUPPORT

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Abstract

The problems of ensuring food security and independence of the country in the current geopolitical situation and sanctions policy are of particular relevance. The purpose of this study is to develop conceptual aspects of the growth of production in the agro-industrial complex based on the improvement of scientific support. Theoretical and methodological approaches to improving the efficiency of institutional interaction between science, government, and business in the agro-industrial complex have been studied. An analysis was made of the share of domestic expenditures on research and development in the field of agricultural sciences in various countries. The main factors hindering innovation activity are systematized. An assessment of the volume and structure of financing of research work in the agro-industrial complex of Russia is given. The main directions of the concept of innovative development of agricultural products are formulated. The practical significance of the research results lies in the development of conceptual provisions for stimulating innovative production for the formation of an ecosystem of scientific support and commercialization of innovations in the agro-industrial complex.

Key words: innovations, institutional development, production, agro-industrial complex, efficiency, research costs, scientific support, trends, mechanisms.

ENVIRONMENTAL AND AGRIFOOD CULTURAL TRADITION PRESERVATION AS PART OF RURAL TOURISM. A SYSTEMATIC LITERATURE REVIEW IN ROMANIA

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Abstract

The terms rural tourism and agritourism can be considered synonymous, but there are differences even though they share certain identifying elements. Agritourism appeared as a solution to in-crease the income of rural households, by capitalizing on their economic potential, however the main activity remained agriculture. The main purpose of this research is to evaluate the situation of agritourism in Romania approached from different perspectives such as: rural development, traditional products, and landscape integrations. The methodology used in this study is a systematic literature review where the search process was carried out using keywords such as: "Agritourism in Romania" or "Rural development in Romania" or "Integration of the rural landscape in Romania". The research was conducted and filtered through the Prisma guidelines in 30 papers that were highlighted in the Results section. In concluding this research paper, we would like to say that there are many factors that should be considered to find a viable solution to help develop rural communities and simultaneously safeguarding the environment and using natural resources responsibly.

Key words: cultural background, traditional methods, integration of the rural landscape, rural areas improvement.

MUTUAL INSURANCE FUNDS TO REDUCING AGRICULTURAL RISKS - A THEORETICAL APPROACH

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Abstract

Production risk insurance is a mandatory component of any effective management system in all areas of economic activity. In agriculture, where production activities, primarily in crop cultivation, are subject to the influence of uncontrolled natural factors - droughts, hail, heavy rains, hurricanes, abnormal temperature fluctuations, etc., risk insurance remains an objective necessity. The study conducted by the authors in this paper on the level of development of agricultural insurance in the Republic of Moldova highlights the poor development and low interest of farmers in agricultural risk insurance products. The application of statistical analysis tools and content analysis allowed the authors to conclude that the problem of agricultural risk insurance could be solved to some extent by the implementation of the Agriculture Index Insurance method by insurers. At the same time, the association of groups of agricultural producers in the establishment of mutual agricultural insurance companies based on public-private partnership principles would increase the insurance coverage of this sector

Key words: mutual insurance, agriculture, risk, Agriculture Index Insurance.

**SUBSECTION
AGRITOURISM
AND RURAL TOURISM**

GASTRONOMIC TOURISM IN THE REPUBLIC OF MOLDOVA - TRENDS AND OPPORTUNITIES

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Abstract

In recent years, gastronomic tourism in the Republic of Moldova has gained momentum due to the country's rich culinary heritage and traditional dishes. The culinary culture of the Republic of Moldova is shaped by its history and geography, with influences from neighbouring countries Romania and Ukraine, as well as its history of being a part of the USSR. The Moldovan wine industry has also played a significant role in driving food tourism, with a long history of winemaking and numerous vineyards and wineries. Moreover, there is growing interest in agri-tourism, which offers visitors the chance to experience rural life and learn about traditional farming practices. Many small family farms in Moldova provide accommodations and activities such as cooking classes, farming activities, and vineyard visits. Despite the potential for food tourism, Moldova's food tourism industry has yet to reach its full potential. To attract more food tourists, promoting and marketing the country's culinary heritage and traditional dishes, as well as increasing the number of food-related events and activities, could prove beneficial. Gastronomy is an integral part of every community, representing a valuable tourism resource and an essential tool for destination image and branding. This paper aims to analyze the potential of Moldova's food tourism industry and provide recommendations for establishing and developing it further as an important pillar of the country's tourism industry. Moldova's ethnic and social diversity and indigenous communities influence its gastronomy, providing insights into ancient gastronomic traditions, customs, manners, and farming practices, making Moldova a unique and underdeveloped gastronomic tourism destination. Materials and methods: The authors apply a quantitative research approach, analyzing data from the National Bureau of Statistics of the Republic of Moldova to examine trends and opportunities in the country's gastronomic tourism. Various research methods, including analysis, comparison, grouping, and SWOT analysis, were employed. Main results: The findings reveal that Moldova's tourism industry was significantly impacted by the COVID-19 pandemic in 2020 but showed signs of recovery in 2021. The country's rural areas, wine industry, and culinary traditions offer unique opportunities for gastronomic tourism development. However, challenges such as lack of awareness, promotion, limited infrastructure, and low stakeholder collaboration need to be addressed. Conclusions: This study highlights Moldova's potential for gastronomic tourism development. To fully develop this industry, efforts should focus on promoting the country's culinary heritage, increasing food-related events and activities, improving infrastructure and services, fostering collaborations, and leveraging digital platforms.

Key words: gastronomic tourism, culinary heritage, niche tourism, agri-tourism.

AGRITOURISM IN THE REPUBLIC OF MOLDOVA AND TOURISM PRODUCT COST - A REVIEW

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Abstract

Based on the data of the National Bureau of Statistics of the Republic of Moldova, as well as publications of scholars from different countries, the present paper presents the role of agritourism as a field of activity and as an activity generating additional income and diversifying risks for agricultural entities. The selection of the appropriate method of calculating the cost of the agritourism product has been identified by the authors as an acute problem in the field of agritourism services. The insufficient level of research with respect to the issue of accounting and cost calculation related to the implementation of agritourism activities by agricultural entities, imposes the need to develop and apply some methodological instructions for accounting and cost calculation of agritourism products.

Key words: agritourism, costs, managerial accounting, agritourism product, travel cost method.

THE POTENTIAL OF ROMANIAN WINERIES IN WINE TOURISM DEVELOPMENT

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Abstract

Wine tourism in Romania is relatively a new concept that became a topic of interest in the last years. If countries such as France, Italy, Spain or Australia are already well known not only for their wine quality, but also for diverse wine tourism activities that are taking place in their most known wine regions, Romania is still in progress with wine tourism development. The aim of this paper is to highlight the wine-growing and wine-making potential of Romania and the way it could lead to the growth of the wine tourism. From the quantitative analysis that was made in order to see where the country stands in terms of wine production, exports, imports and consumption compared with the main wine producing countries, it has been seen that Romania has a positive evolution trend and overall, it ranks 13th worldwide in regard to wine production. Additionally, the second part of the analysis has shown the classification of Romanian wine regions and the number of wineries per region, as well as the main wineries that offer wine tourism services. Considering the dimension of the wine sector, there is an orientation of Romanian wineries towards the growth of the wine tourism services, where currently Muntenia and Oltenia wine regions stand out.

Key words: *tourism, wine sector, wine route, touristic offer, viticulture.*

THE PANDEMIC, A CHANCE FOR AN AUTHENTIC ROMANIAN RURAL TOURISM

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Abstract

The pandemic has caused a contraction in hospitality business and sifted through Romanian tourism, creating a real chance for authentic rural tourism. The characteristic economic indicators for the period 2020-2021 are presented, highlighting the decreasing trend in the degree of occupancy especially in large hotels, according to INSSE statistics. The organizational specifics of a tourist unit - a guesthouse - in a Muntenia authentic household, were analyzed. This type of authentic peasant household organization, with accommodation units distributed within a large, spaced courtyard, provided the opportunity to carry out a tourism activity in a mandatory by low safe, sanitary conditions. This led to the continuation of this business and the development of the local tourism offer. It can thus be said that authentic Romanian tourism, organized in the typical way of a traditional household, offered a viable alternative for the continuation of hospitality in a critical period of the pandemic, characterized in general by a decrease in this activity.

Key words: *pandemic, rural tourism, authenticity, guesthouse.*

**SUBSECTION
ENVIRONMENTAL
ECONOMICS AND
BIOECONOMY**

**RENEWABLE ENERGY, AN INFLUENTIAL FACTOR IN
THE DEVELOPMENT OF THE DANUBE TRANSPORT
CORRIDORS ROMANIA - BULGARIA AND A SUPPORT
MECHANISM IN INTERMODAL CONNECTIONS**

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Abstract

The paper aims to present the need and the importance of using efficiently the energy and finding new ways to improve the transport based on renewable energy. The paper is based on a large number of official information sources which are structured and presented in the author's opinion. The main results emphasize that the Danube region is a large river basin and ecological corridor requiring a regional approach to nature conservation, spatial planning and water management. The environmental impact of transport links, tourist constructions or new energy production facilities must also be considered. Transport policy has been given a new direction: achieving a 'sustainable through flexibility' system, which means organizing transport in such a way as to optimize energy consumption. The development of the national transmission system shall be carried out in accordance with the requirements of conservation and environmental protection and the rational use of energy. The protection of human life and the environment is a priority in all transport-related relations.

Key words: *renewable energy, Danube, transport, cross-border, cable project.*

**ECONOMIC ANALYSIS AND ECOLOGICAL EFFECT
OF FERTILIZING WITH ORGANIC PRODUCTS ON
NATURAL GRASSLANDS UNDER THE CONDITIONS
OF BIOLOGICAL FARMING**

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Abstract

*During the period 2013-2015, boron, molybdenum and phosphoro humate and their impact on the economic analysis and ecological efficiency of the obtained fodder production were tested on natural grassland of *Chrysopogon gryllus* type. Based on a comparative evaluation of the main economic indicators of different types of fertilizers and dry matter yield per decare, it was found that foliar treatment of natural grassland of *Chrysopogon gryllus* type with boron and molybdenum humate had a positive effect on dry matter productivity. The imported molybdenum humate realized the highest revenues and gross profit and determined these two bioproducts as the most economically efficient for obtaining high yield and quality of fodder. The ecological effect of foliar treatment with biofertilizers significantly affects the floristic composition of the grassland, reducing the share of the main species *Chrysopogon gryllus* and motley grasses in the formed aboveground mass and increased the share of *Agrostis capillaris* and legume meadow grasses, such as *Trifolium campestre* and *Lotus corniculatus*.*

Key words: *natural grasslands, fertilizing, economic analysis, ecological effect.*

A FAIR TAX BASE FOR THE MUNICIPAL WASTE CHARGE - KEY TO AN EFFECTIVE WASTE MANAGEMENT POLICY IN THE REPUBLIC OF BULGARIA

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Abstract

Municipal waste management is one of the most complex flows to manage. It is usually delegated to local authorities and funded by the revenue from the municipal waste charge. The critical introduction of the polluter pays principle raises the question of how to reasonably set the municipal waste charge. It should be structured so that it generates sufficient revenue to cover the costs of waste management. At the same time, it should influence human behaviour to reduce waste even at the source. Achieving both at the same time requires a strong link to the tax base of the charge. The fairest one is linked to the amount of household waste. Such a link is necessary to incentivise taxpayers to effectively reduce and manage the waste generated. Bulgaria is among the countries that have postponed such a reform for many years, but it is now becoming inevitable. The main objective of this study is to assess and analyse the current financial instruments and tax legislation related to municipal waste management in the Republic of Bulgaria. The critical point is to evaluate the link between the tax base and the taxpayers' behaviour by setting the municipal waste charge in the Republic of Bulgaria. The methods of retrospective analysis and synthesis, inductive and deductive methods and comparative analysis are used to achieve the aims and objectives of the study. In Bulgaria, an unfair tax base has always been applied in determining the municipal waste charge. It depends not on the amount of waste but on the property's tax assessment. The fiscal policy in Bulgaria related to the municipal waste management needs to be updated to achieve the targets set in the Bulgarian National Waste Management Plan 2021-2028. The change should affect both the methodology of calculating the waste charge to apply the "polluter pays" principle and the system of tax preferences and reliefs to encourage the rational treatment of household waste, such as recycling.

Key words: municipal waste charge, tax base, waste management, Bulgaria.

GREEN PUBLIC PROCUREMENT AS A CIRCULAR ECONOMY POLICY

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Abstract

Promoting the circular economy (CE) is a fundamental prerequisite of the proposed 'European Green Deal' and the transition to the CE is a strategic objective of the European Union. Cohesion policy and other established public policies are taking a new approach, being adapted to the requirements of sustainable development. This research aims to highlight that green public procurement in combination with circular procurement is an effective tool through which public authorities can stimulate the circular economy transition. The methodology is based on the literature review, outcomes from the own previous research, the processing for analysis of data with tables and graphs, and the analysis and synthesis of recent strategic documents from the EU and Romania. The conclusions and recommendations refer to the premises and prospects of green public procurement for the promotion of the circular economy, also with reference to the agro-industrial field as a priority sector.

Key words: circular economy, green, policy, public procurement, intermediate consumption.

MANAGEMENT OF WINTER CEREAL CROPS FROM SOWING TO FLOWERING - SCIENTIFIC AND ECONOMIC CONSIDERATIONS

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Abstract

Through this paper we aimed to show that, during a vegetative cycle, winter cereal must go through a physiological process of vernalization (low temperatures), which induces and controls flowering and fruiting, also regulating the following development stages. The research objective was to establish the vernalization model on 5 wheat and 2 barley winter varieties, in difficult climatic conditions, generated by water stress, lack of cold periods, but also by some technological aspects. Own research, observations and measurements were carried out in the experimental fields with varieties from south Romania (Modelu - Calarasi county), during the period 2012-2022. It was found that there are significant differences between varieties regarding the parameters required for vernalization, the development of which is genetically coordinated by genes that produce vernalin - the hormone that induces vernalization and which, modified by demethylation, forms gibberellic acid, subsequently participating in the development of the apex, of the spikelets, of the ear, pollinating anthers and soft grains. Uneven seedbed preparation work and sowing depth also create inequalities in water access to seeds, in the achievement of germination and vernalization.

Key words: wheat, barley, vernalization, development stages, yield.

**ENVIRONMENTAL AWARENESS OF STUDENTS
OF NATIONAL UNIVERSITY OF LIFE AND
ENVIRONMENTAL SCIENCES (NULES) OF UKRAINE
IN THE CONTEXT OF MODERN CHALLENGES**

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Abstract

This paper aims to provide evaluation of environmental awareness of students of the National University of Life and Environmental Sciences of Ukraine (NULES of Ukraine) taking into account challenges that appear due to the war. The problem of the research is reduced to answers to the following questions: (1) What sources of information do students use in order to be aware of environmental problems? (2) Do the war in Ukraine influenced on the youth awareness increase about the environment problems? (3) What priority measures should be implemented to solve environmental problems in wartime conditions? To realize purposes in the article, sample observation within students of Economic faculty was done. Results showed that 94.1% of respondents are worried about environmental problems. At the same time main sources of information about environment issues were social networks (44.1%); internet sources (41.2%); television (11.8%) and press (2.9%). Besides, 20.6% of students assumed that information about environment is easily accessible, 52.9% accessible, and 26.5% difficult accessible. Most of the respondents considered that the environment theme is not popular enough in the mass media (79.4%). Russia invasion has provoked sharpening environmental problems, where results of the survey showed that 88.2% of respondent's deep environmental awareness. In addition, 44.1% of surveyed students worry about the environmental consequences of the war. To find answer to the question about measures that should be implemented to solve environmental problems in present conditions, the SWOT analysis was done, where in the opportunity square are indicated main points, which should be realize: the rules of conduct and norms of responsibility for environmental offenses should be improved at the state level; the creation of appropriate infrastructure for the population to fulfil its environmental responsibilities; highlight environmental issues in the mass media and social networks; growth the role of non-governmental nature protection organizations and universities in raising the public's awareness of environmental problems; development, adoption and implementation of the national program of environmental education in educational institutions.

Key words: environmental awareness, ecology, students, NULES of Ukraine, information.

REVIEW OF THE LCA ELEMENTS APPLYING TO THE MICROALGAE LIPID EXTRACTION

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Abstract

*Although significant studies of microalgae have been published, there is no clear information regarding the advantages, challenges, or feasibility of polyunsaturated fatty acids (PUFA) production in a sustainable large-scale process. Such information on the current state of PUFA extraction applied to feed and food is particularly important for researchers and stakeholders to identify and apply the most sustainable technology. Based on highly cited academic articles and other digital libraries of academic journals, this study aims to provide a comparison between different microalgae lipid extraction methods through LCA parameters evaluation. PUFA extraction from microalgae *Nannochloropsis* sp. used as feedstock, is evaluated using methods such as ultrasound, microwave, supercritical fluid extraction, and accelerated solvent extraction in a comprehensive review. Extraction yield, nature of the extraction solvent, energy type source and consumption, labor, and extraction time influenced the specific LCA parameters, quantified for global warming potential, ecotoxicity potential, fossil resource scarcity, and cumulative energy demand. It is possible to reduce production costs and environmental impact by selecting the appropriate method and optimizing these parameters.*

Key words: *Global warming potential, Fossil resource scarcity, Cumulative Energy Demand.*

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

**CONCEPTUAL MODELS, BARRIERS
AND OPPORTUNITIES FOR ADOPTION
AND DIFFUSION OF AGRICULTURAL INNOVATIONS**

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Abstract

Agricultural innovations are considered a key driver in overcoming the global challenges related to climate change, natural resources scarcity and food security. However, the features of agriculture increase the degree of complexity in the implementation and adoption of the innovations. The aim of the study is to observe the theoretical and empirical literature on agricultural innovations adoption and diffusion and to outline the main conceptual models, barriers and opportunities in these processes. The study results show that there has been diversity in research linked to agricultural innovations adoption methods and models and therefore lack of globally accepted methodology. The surveys in the field represent different perspectives and outline social, economic and marketing points of view in the innovation diffusion system, which highlight the major challenges and prospects. The broader acceptance of agricultural innovations requires interaction and linkages between different stakeholders, knowledge transfer and the active role of the institutional setting in shaping the processes critical for agricultural innovation adoption.

Key words: drivers of adoption, agricultural innovation system, knowledge transfer

ONLINE FOOD PURCHASING DURING COVID-19 PANDEMIC

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Abstract

Covid-19 pandemic led to many disturbances in everyday life, including regular supplies with medicines and food especially during quarantine. The present study aimed to investigate the way the pandemic affected the food chain based on consumers' preferences for e-shopping of food products. An anonymous questionnaire was distributed before the pandemic in February-March 2020 and later in September 2020-March 2021 among 470 Bulgarian citizens in total. The survey showed that for 43.4% of the respondents "Online shop/ E-shop/ E-market" was the most preferred online channel for ordering/purchasing food. The reasons for choosing internet shopping varied: convenience of purchase (19.6%); no physical attendance (6.4%); fresh products (3.8%); comparison of prices (8.5%); lack of preferred products on the conventional market (11.1%); finding products from distant markets (10.9%); health issues/isolation (0.2%). There were several types of products purchased via internet: food from animal origin (6.2%); fruits & vegetables (2.6%); organic food (18.1%); delicacies/exquisite products (8.5%); honey & bee products (5.5%); medicinal food/additives (12.3%); confectionery (7.7%); pet food (0.6%); cooked meals (1.3%). In conclusion, food purchased online was significantly increased during the Covid-19 epidemic and afterwards due to changes in the consumers' demands.

Key words: consumers, Covid-19, e-trade, food.

DIGITALIZATION OF AGRICULTURE IN BULGARIA

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Abstract

A certain increase in the scope and degree of digitalization and digitization in the agricultural sector has been laid down in the EU and national strategic documents, for the new programming period of 2023-2027. This explains the intention to increase competitiveness and ensure a higher return on investment through the accumulation of new knowledge and innovation. Therefore, the study aims to analyze the current state and subsequent development of digitalization of the agricultural sector in Bulgaria. The applied research methods in the present study are theoretical and empirical, including: analysis, synthesis, comparison, and statistical processing. As a result of the conducted research, it was found that in recent years there has been a positive tendency in the accessibility of Bulgarian households to the Internet. However, significant differences have been reported regarding digital technologies in Bulgarian agriculture, compared to other members of the EU. As a result of the results obtained, a review of the strategic and planning documents has been accomplished, in order to support the interested parties in the preparation and improvement of policy-making in this sector.

Key words: digitalisation, agriculture, rural areas, Bulgaria.

ANALYSIS OF RAW DATA RETURNED BY MOST USED ONLINE PUBLIC OPINION POLLS TOOLS

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Abstract

The appearance and evolution of the questionnaire are strictly linked to the history of statistics as a science. Why is the questionnaire related to the history of statistics? As the questionnaire is not a simple list of questions, the important part behind the questions is the statistical interpretation of the answers received from respondents. We have entered several platforms of public opinion polling, with the idea of seeking maximum effect with minimum effort, from a beginner's position – how can an entrepreneur be at the beginning of the road. It was conduct research on how works and what deliverables give several platforms of public opinion polling. Each tool that loaded and launched the opinion poll on the consumption of craft beer gave answers with different characteristics, the only common basis being the choice of the free package. Results from Google Forms, ZoHo Survey, and Survey Monkey were analyzed and compared. Of all these, the easiest to work with and most complete is ZoHo Survey for those who don't want to use subscription services, and with some financial effort for a Survey Monkey subscription.

Key words: market research, survey, entrepreneur.

ESTABLISHING A NETWORK OF COMMUNICATORS AS AN ENGINE FOR THE DEVELOPMENT OF NATURAL GRAZING ACTIVITIES

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Abstract

The development of communication networks has an increasingly important role in the development and modernization of the fields of activity of agriculture. This trend has effects between different actors in the production chain and creates a tighter connection between the stages of land cultivation or the maintenance of natural pastures, ecological grazing, milk, and meat production, respectively the preparation of the final products and their distribution, including marketing techniques. In the paper, an analysis will be made of the specialized publications in the field of Agribusiness in Romania and the effectiveness of the various communication channels used in the present will be discussed with the aim of contributing to mitigating the current problems of natural grazing activities and identifying the main pillars of development and progress. This research paper utilizes an academic research methodology aiming to highlight the importance of communication networks in promoting natural grazing activities. The results of the study demonstrate that the establishment of networks can significantly contribute to the modernization of the Romanian agricultural sector, aligning it with the principles of sustainable competitiveness and resilience. In conclusion, this study provides evidence that the establishment of such networks is essential for the development of a sustainable and resilient agricultural sector in Romania.

Key words: natural grazing, communicator network, dissemination of information, sustainability, rural development, agribusiness.

**E-COMMERCE AND E-CONTRACTS:
CHALLENGES, RISKS AND OPPORTUNITES
IN THE CROSS-BORDER MARKETS**

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Abstract

The popularity of e-commerce is growing more and more, being widely accepted and promoted by both consumers and businesses. The scientific investigation has the purpose to study the commercial relations which take place in the virtual environment, where people buy and sell products and services, using more and more e-contracts and e-commerce platforms. In this scientific research are analyzed types and advantages of e-commerce, the categories of e-contracts, the consent and the validity of e-contracts, the legal framework of the Republic of Moldova in the area of study and the risks related to them and the opportunities in the cross-border markets. In the research was used statistical data from the National Bank of Moldova, the National Bureau of Statistics of the Republic of Moldova and other sources. The main conclusion of the scientific analysis is that electronic contracts have a high importance in the development of the cross border markets but they generate risks which need to be managed. The main results of the scientific paper consist of the highlighting the necessity of additional algorithms, questions before signing the electronic contracts in order to reduce the risks and to be more protected.

Key words: e-contracts, e-commerce, legal framework, online shopping, risks.

DIGITALIZATION, FINANCIAL INSOLVENCY AND BANKRUPTCY RISK FORECASTING OF BULGARIAN AGRICULTURAL ENTERPRISES

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Abstract

This paper aims to study the impact of agricultural enterprises' digitization and the performance and bankruptcy risk. Analyzing financial insolvency and predicting bankruptcy risk is a constant focus of research. Company managers and their creditors, auditors, counterparties, etc., are very interested in this issue. Many economists are constantly looking for adequate models and methods by which to establish the financial health of companies with the most significant degree of precision. This paper answers whether some of the most commonly used bankruptcy prediction models also apply in the agricultural sector. For this purpose, a study was made of the annual statistical reports of medium and large Bulgarian agricultural enterprises operating in this sector for five years. Next, the paper's authors also look for evidence that agricultural enterprises with a higher level of digitalization and application of information and communication technologies face a lower risk of bankruptcy and better performance, applying the fixed effect and probit models. The econometric analysis clearly shows a statistically significant relationship between the risk of bankruptcy and the productivity of agricultural enterprises, measured by ROA. Applying the probit model reveals a higher probability of bankruptcy for firms with lower productivity and higher leverage.

Key words: livestock sector, insolvency, z-score models, digitalization, fixed effect model, probit model.

**STUDY ON THE PERCEPTION OF ROMANIAN
FARMERS REGARDING THE FACTORS THAT
INFLUENCE THE DEVELOPMENT OF AGRICULTURE**

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Abstract

Climate changes with their effects: floods, drought, desertification affect agricultural production. Likewise, the Agricultural Policies on the European Union, through the Farm to Fork Strategy, propose limiting the amount of fertilizers to improve the quality of the environment. Farmers must adapt and use high-performance technologies to face these challenges. In this context, the study analyses the perception of farmers with large farms regarding the main factors that influence the evolution of agriculture in Romania. According to the survey, the factors that influence the increase in agricultural production are: the use of selected seeds, adapted to the agricultural area where the farm operates, the establishment/expansion of irrigation systems, access to new research in the agricultural field, the increase in the level of training of agricultural personnel, the intensive application of fertilizers and pesticides, easy access to low- cost financing. Regarding the association in agriculture and ecological agriculture adapted to climate change, the farmers' attitude is polarized.

Key words: *climate changes, certified seeds, genetic breeding techniques, irrigation systems, Romania.*

**TRENDS IN THE DEVELOPMENT
OF INNOVATIVE PROCESSES IN THE INDUSTRY
OF THE AGRO-FOOD COMPLEX OF RUSSIA**

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Abstract

Innovative development in the agricultural sector of the economy is the main vector of sustainable development of production potential. The purpose of this work is to identify industry specifics, to study the factors of innovative development for various types of agricultural production. Significant sectoral differences in the level of innovative development are revealed. The article highlights the priority areas of innovative development aimed at increasing the added value. Based on the normalization of actual indicators of resource intensity in relation to the threshold ones, the level of innovativeness of the components of resources - feed, labor, electricity and fuel was determined, and the efficiency of organizations' costs for innovative activities was empirically calculated. An innovativeness matrix has been developed that makes it possible to identify groups of regions according to innovative support resources and innovative production potential using the example of the dairy cattle breeding industry. This methodological approach makes it possible to identify the degree of sufficiency of innovative support resources to improve the efficiency of using the production potential of milk production.

Key words: innovative development, industry specifics, sustainability, factor analysis, SWOT analysis, management, efficiency.

CLUSTERS EVOLUTION MODELS IN THE SCIENTIFIC LITERATURE: A TEXT MINING APPROACH

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Abstract

The existing literature related to the cluster concept has been based on solid research from A. Marshall's theory of industrial districts to M. Porter's cluster concept, with location being the main factor on which the two built their premises. Considering that the cluster model has evolved over time, this paper aims to study the dynamism of this model, taking into account geographic concentration as an essential element influencing the emergence of clusters. Then it moves on to novel aspects, such as the role of clusters in promoting new technologies or innovations and the cluster's contribution to increasing the competitiveness of companies or even regional competitiveness. The methodological approach of this research consists in systematically reviewing the literature on clusters, the evolution of the model, the importance of geographical proximity and clusters' impact on growth, the elevation of innovation processes and competitiveness of companies and regions, but also the involvement of clusters in the implementation of policies. The paper provides a general picture of the dynamics of the concept by summarizing and integrating several concepts treated by other researchers in an in-depth manner. Our findings reveal the importance of the proximity factor for industries that are part of clusters, along with the fact that over time, globalization has imposed a trend towards an approach that crosses regional and national borders.

Key words: competitiveness, cluster policy, evolution, innovative clusters, regional development.

**SUBSECTION
MISCELLANEOUS**

IMPACT OF CULTIVAR CHARACTERISTICS ON THE ECONOMIC EFFICIENCY OF BIRD'S-FOOT- TREFOIL FODDER

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Abstract

The selection of suitable grass fodder crops and their cultivars are key factors determining efficiency in agrarian production. In order to produce the most economically efficient bird's-foot-trefoil cultivar for cultivation under mountain conditions, research was conducted in the experimental field of the Research Institute of Mountain Stockbreeding and Agriculture-Troyan. The experiment was based on the block method with the following bird's-foot-trefoil cultivars: Targovishte 1 (Bulgaria), Bursztym (Poland), Kalo (USA), Lot (Poland), Madison (France), MO - 20 (USA), Nico (Romania) were studied for their impact on economic efficiency. It has been established that the genotypic characteristics of the cultivars and the applied production technology determine the productivity and profitability of the obtained fodder production. Soil and climate conditions has a major impact on the level of average yield, gross revenue and profitability of the obtained fodder. From an economic point of view, the Madison and Bursztym cultivars are the most suitable for inclusion in the structure cultivars in the production of bird's-foot-trefoil fodder. They realize fodder production at the lowest production costs, high gross profit and lowest production costs. Their highest efficiency ratio makes them extremely cost-effective and an alternative for agricultural practice.

Key words: *bird's-foot-trefoil, cultivars, economic efficiency.*

THE MANAGEMENT OF PUBLIC PROCUREMENT FOR SUSTAINABLE AGRICULTURAL PRODUCTS

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Abstract

The purpose of this paper is to present the procedure of managing public procurement contracts for sustainable agricultural products from the public entities perspective (with reference to setting criteria for selecting the suppliers, contract management, etc), but also from the perspective of the selling companies (from drafting the tender to products being delivered). The research is based on data processed by Eurostat (2012-2021), but also on information taken from the Romanian Electronic Public Procurement System (2018-2022). The analyses in the paper concern indicators such as: the procurement of agricultural products from Romania, and at European level the organic production of animal products, the number of processors of sustainable agricultural products, etc. In conclusion, since the public institutions buy large quantities of agricultural products, but the market for sustainable agricultural products is restricted, a global strategy for rethinking the public procurement in this area is clearly required. The work is relevant both for the contracting authorities with respect to the management of public procurement for agricultural products, but also for the companies with respect to the business management of public contracts.

Key words: public procurement, management, agriculture, sustainability.

THE INTERCONNECTION MODEL BETWEEN THE REPUBLIC OF MOLDOVA'S FOOD SECURITY AND ITS AGRICULTURAL PRODUCTS EXPORT

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Abstract

The main objective of this study is to analyze the food security resilience of the Republic of Moldova. For this reason, it is essential to establish the interconnections between food security and foreign trade of the Republic of Moldova in the actual circumstances on the external market. On the one hand, agricultural economic agents faced the loss of traditional export markets. The most vulnerable category in this regard is 08. Edible fruits and nuts; peels of citrus fruits or melons, which in 2021 constituted 7.40% of the total exports. About 52.15% of the export of this category was directed in 2021 in Russian Federation. On the other hand, the increase in the prices of agri-food products has intensified the risks of excessive growth of exports and their potential insufficiency for consumption on the domestic market. In conclusion, it is highlighted that the situation in the region of our country generates vulnerabilities with a substantial impact on food security.

Key words: food security, agricultural products, agriculture, export, trading partners.

**ASSESSING THE STATE OF FERTILITY (QUALITY)
OF THE SOILS FOR SUSTAINABLE AGRICULTURE
IN REMETEA MARE, TIMIS COUNTY, ROMANIA**

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Abstract

The values obtained give us a series of information related to the factors present in the soil, factors that affect or limit the fertility and quality of these soils, such as: humus content, reaction, degree of settlement, etc. whose knowledge is particularly important because a series of improvement or limitation measures can be taken in time allowing the practice of sustainable agriculture. In the current context of climate change, both soils and crops are particularly vulnerable to a series of changes and environmental factors. In this context, the sustainable use of soils aims at improving soil quality and obtaining higher and qualitatively significant productions. This can only be achieved by knowing soil physical, physical-mechanical and chemical properties. This paper shows a series of soil properties, such as texture, densities, porosities, pH, humus content, total nitrogen content (%), mobile phosphorus (ppm), mobile potassium (ppm) content and soil settlement degree (%) in the seven types of soil identified within the studied perimeter.

Key words: assessment, soil quality and fertility, sustainable agriculture, soil properties, limiting factors.

**DIGITAL TEACHING BEHAVIORS
IN 2020-2022 IN PRE-UNIVERSITY INSTITUTIONS
FROM URBAN AND RURAL AREAS**

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Abstract

Due to the changes that the pandemic imposed on the educational system, three periods can be identified in Romania, depending on the teaching methods used: Online teaching - 2020; Hybrid teaching - 2021; Traditional teaching (in physical format) - 2022. In each of these periods, teachers had to adapt their teaching style and use specific digital tools and applications. In this paper, we present the research conducted as part of doctoral theses in 7 pre-university institutions (2 high schools from urban environments and 5 secondary schools from rural environments), where questionnaires were collected from 100 teachers. The results revealed differences in the way of approach to teaching in the three analyzed periods, with a pronounced traditional behavior in the rural environment and with an obvious reluctance to change.

Key words: urban and rural education, teaching behaviour, digital tools, digital applications.

THE EFFICIENCY OF TRANSPORT COMPANIES FROM GIURGIU COUNTY

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Abstract

The aim of the present work was to analyse the economic efficiency of transport companies in Giurgiu, a county in the south of Romania. The research was supported by the PROINVENT project, POCU/993/6/13- 153299. The research consists of the following steps: Selection of 600 companies for the studied area with NACE code 4941 road freight transport; Elimination of the companies without balance sheet or turnover in 2021; Creation of a database with 527 companies (412 from rural areas). These companies had a turnover of 121 million euros and a profit of 12.7 million euros in 2021. The road transport sector represents about 7% of the GDP of Giurgiu County. However, only 73.8% of the companies (388) made a profit. Of these, 17% had a net profit margin below 5%, 63% between 20-40% and 20% above 40%. In conclusion, the road transport sector plays an important role in the studied area, as it ensures the activities necessary for the transport of products in a district that is, on the one hand, highly agricultural, but on the other hand, an important transport hub in the south of the country.

Key words: *transport, efficiency, turnover, net profit margin.*

**UNCONVENTIONAL FOOD PLANTS: RICH NUTRIENTS
SOURCES WITH UNTAPPED POTENTIAL -
A LITERATURE REVIEW AND A CLOSE EXAMINATION
OF THE ROMANIAN LEGISLATION IN THIS REGARD**

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Abstract

The difficulty of finding non-animal protein sources has determined scholars to explore the less researched plants in recent decades. Alternative protein sources, such as those derived from multicellular fungus, microalgae, and unconventional vegetables, have become a prominent focus in Western studies, particularly because urbanization and distance from metropolitan centres might limit access to food plant resources. Plant-based proteins are regarded an economical option and can be derived from industrial waste, which is abundant and has significant health benefits. The present article aims at exploring the potential of unconventional food plants, as although not much attention is dedicated to them throughout the public food chains, they have gained much academic interest in the last 10 years. Particularly, their potential in Europe, as well as in Romania is the focus of this paper. In Romania, while the current legislation recognizes their existence, their understanding is limited to that of genetically modified organisms. The implications of this lack of understanding are outlined in the final part of this paper.

Key words: unconventional food plants, importance, characteristics, legislation, Romania.

**STUDIES ON THE NUTRACEUTIC PROPERTIES
OF SOME NATURAL BIO STIMULATING JUICES
OBTAINED FROM INDIGENOUS PLANTS
AND BEE PRODUCTS**

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Abstract

Plants represent an inexhaustible source of organic substances, minerals, vitamins, and antioxidants, which the human body absolutely needs. The opportunity to capitalize on some indigenous plants and bee products in natural, bio-stimulating juices results primarily from the objective itself, that of obtaining competitive nutritional-therapeutic assortments, with a healthy effect on consumers. The technology of preparing natural, bio-stimulating juices is not only relatively simple but also affordable. Also, the valorization of the by-products resulting from obtaining these bio-stimulating natural juices is another important element of economic efficiency. Taking into account their multiple sensory, nutraceutical, and economic characteristics, obtaining bio-stimulating natural juices from indigenous plants and bee products become a major imperative for improving the health status and quality of life for consumers, as well as for the practice of performing national agrotourism.

Key words: beekeeping, biostimulants, juices, nutraceuticals, plants.

