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ALGERIAN EFFORTS IN DIVERSIFYING THE ECONOMY: THE AGRICULTURAL SECTOR AS A SUBSTITUTE

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Abstract

The objective of this work is to assess policies that have been adopted pertaining to Algerian agricultural, this study showed that Algeria as one of the African nations that belong to the organization of petroleum exporting countries, a large amount of its economy is dependent on oil, natural gas, and industrial manufacturing, which account for more than 95% of the Algerian exports, and since oil prices started falling dramatically in 2014 Algeria's longstanding need to diversify its economy away from hydrocarbons has gained fresh urgency.

Over the years of independence, successive governments initiated different action plans to boost agricultural production and reduce reliance on imports in order to achieve the security of food supplies. Meanwhile, Currently, agriculture accounts for approximately 13% of the Algerian GDP and employs 24% of the workforce, the recent surge in agricultural activity is a big step forward for Algeria, which saw farmers uprooted from their land mainly during 1957-61 french colonizers attempted to isolate independence fighters from the population in the countryside. After achieving independence, authorities seized most of the country's farmland and embraced a soviet-socialist management style in the agricultural sector, in the early 1980s, Algeria tried to remedy the failures of the command economy by turning most of its land over the private sector. However, in 1992 the civil strife between the army and radical Islamists caused a mass exodus from Algeria's rural to urban areas, devastating the agricultural industry. However, the sector's productivity has witnessed a relative improvement in recent years due to the Agriculture Development Plan(the National Agricultural Development Program (PNDA)) implemented in 2000 by the Ministry of Agriculture to boost agriculture development and production. In line with this program; the agricultural development strategy was re-oriented in August 2008 (the National Agricultural and Rural Development Program (PNDAR)) to reflect new policy priorities in several areas including intensification of agricultural production, revitalization of natural resources and improved consumption of water resources as well as food safety initiatives. Despite the Agriculture Development Plans and the government aids, Algeria is still unable to feed its growing population by being one of the world's largest importers of wheat at a cost of $1.7 billion in 2017, where analysts say providing aids is not sufficient to meet the government's goal of increasing agriculture's share of economic output from 13 percent now, as long as youths are losing interest in the land and looking elsewhere for jobs.

Keywords: Diversify the Economy, Algeria, Hydrocarbon Sector, Agricultural Sector, Agricultural Policies.

BAYESIAN MODEL COMBINATION SCHEMES: AN EXAMPLE OF MODELLING SELECTED GRAINS SPOT PRICES

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Abstract

Certain researches identified that both the drivers of agricultural prices, and the strength of these drivers impact on agricultural prices is varying in time (Li et al., 2017). In other words, for the different time periods, different variables are playing the major role as the drivers of the commodities prices. This leads to the fact that "the best" econometric model explaining a given commodity price changes with time. Quite a novel example of an econometric method including such features is Dynamic Model Averaging proposed by Raftery et al. (2010). However, this method can be easily adapted from model averaging technique to model selection one. Moreover, Barbieri and Berger (2004) argued that common procedure to select the model with the highest posterior probability is not always optimal; and, therefore, they proposed Median Probability Model. This research focuses on wheat, corn and soybean spot monthly prices since 1976. Following the literature, fundamental factors, financial factors and general macroeconomic factors were used as explanatory variables (Chen et al., 2012; Fernandez-Diaz and Morley, 2019; Nazlioglu and Soytas, 2012). The novel Bayesian methods applied herein were compared in a sense of forecast accuracy with some benchmark models. Secondly, the obtained results were used to describe time-varying patterns of how different variables impact grain prices during different time periods.
Keywords: Agricultural Prices, Forecasting, Grains Prices, Model Averaging, Model Uncertainty.

Acknowledgement

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TUNISIANS CONSUMERS PREFERENCES REGARDING FUNCTIONAL FOOD

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Abstract

Consumers are becoming increasingly concerned about their health and pay more attention to the healthiness of their diet. Functional food represent an emerging sector in markets where consumers are increasingly looking for products with functional ingredients such as probiotics, omegas or vitamins as a means to boost their well-being. In Tunisia Functional foods are relatively news and their consumption is still limited. In this context this paper applied Conjoint Analysis method (CA) to elicit consumer preferences over attributes of functional foods using dietary cookies as functional product of interest.

The application of the Conjoint Analysis has considered four attributes of dietary cookies: the taste (fruits; chocolate; nature), the price in dinar per package of 180g (low: 4,6; medium: 6,3; high: 10,6), energy intake in Kilo calorie / 180g (low: 670; medium: 780; high: 890) and the composition (oat meal; barley flour; wheat flour; corn flour)

The information handled in this research were obtained from a face survey performed to 420 consumers of dietary cookies in Tunisia. The main findings of the present study indicate that consumers express positive attitudes towards the consumption of local dietary cookies. Indeed, results indicate that the composition and the price of dietary cookies are the attributes that most affect consumers´ preferences. Finally the profile of the most preferred dietary ookies by Tunisians consumers was identified.

Keywords: Functional Food, Dietary Cookies, Preference Structure, Conjoint Analysis, Tunisia.

MODELING ALTERNATIVE TECHNOLOGY ADOPTION TRANSFORMATION SCENARIOS TO ACHIEVE PRODUCTION AND ECONOMIC PERFORMANCE GOALS IN THE URUGUAYAN BEEF CATTLE SECTOR

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Abstract

The Agricultural Transformation Pathways (ATP) for Uruguay and two other selected study cases issued in 2016 in the frame of the UN´s Sustainable Development Solutions Network (SDSN) projectmade relevant advances in setting the desired and feasible goals and development objectives for 2030 (Schwoob et al., 2016). Beef is one of the main agri-food chains included in Uruguay´s first studies given is the country´s main export and production is the largest in terms of land used (12,6 million ha) and farms involved (44780).

Understanding the relationship among the multiple factors driving farmers´ decision making process is crucial for policymakers and experts selecting the best pathway to overcome roadblocks and reach goals. This paper addresses the relationship between farm business orientation, farm size, technological level, production performance and economic return in the beef cattle production sector. The objective is to understand the main constraints to the adoption of technology and the main factors to consider in the design of future assistance programs. Furthermore, different alternative scenarios of change in technology adoption were considered over the actual situation and modeled, evaluating impacts on the country´s average beef production performance indicators, number of cattle slaughtered and beef sector economic return.

Using data from the National Cattle Farm Survey 2016 (1298 farms) (Bervejillo et al, 2018) Uruguay´s cattle farms were classified according to their livestock business main orientation: cow-calf operations (CC, 42%), cow-calf and backgrounding (CCB, 14%), cow-calf and pasture finishing (CCF, 31%) and cattle pasture finishing only (F, 13%). Within these groups “land extension” was used for further classification as “Small”, “Medium” or “Large” scale farm operations (50-500 ha, 501-1250 ha, and >1250 ha).

As a proxy for the intensity of technology use a Technological Index (TI) was developed and calculated for each farm using data of application of specific production practices, farm production efficiency indicators and the extension and type of improved pastures in the farm.

Results show a big proportion of Uruguayan cattle farms in the lower levels of technology use (52%), being larger for CC (62%) and CCB (45%) operations. Farms in the “Improved” technological level although less in number, account for 27% of the cattle land of the country, being the rest of the land almost evenly distributed among the other levels (17 to 19% each).

CC farms, in particular, show a strong relationship between farm size and technological level. Small farms classified mainly in the Basic level, with a decreasing proportion trend in the other levels. Large farms, on the other hand, have an opposite trend, with an increasing proportion of farms as technological level improves.

Further analysis shows a large number of farms with a very low level of technology use, particularly in the cow-calf component of the production process. In most cases, even the most basic

and well-knownpractices, with no implementation incremental cash costs are disregarded. Excess stocking rate (Boné&Perugorría, 2011) and lack of facilities for specific technology implementation are main restrictions affecting reproduction and production performance. Small farmers´ perception of cattle accumulation as a denotation of wealth and also as a secure readily available savings fund is the main cause of the excess stocking rate. Consequences are not only lower production performance but also a higher vulnerability at extreme climatic events.

Different alternative scenarios of change in technology adoption were considered over the actual situation and modeled (Soares de Lima, 2009) and compared to the 2030 ATP´s (SDSN) projected goals for the Uruguayan beef sector. Production and economic performance results for each business orientation, and farm size were country-averaged for each scenario.Change in production practices modeled reached in some cases a 30% increase in productivity and 25% in animals slaughtered per year, driven by improvements in reproduction indicators, pasture quality, and availability, and increased supplementation among others. Farms economic return also showed a positive trend while a decrease in GHG emissions per unit of product was projected as a result of better feeding and consequent shorter age to slaughter.

However, results show that important changes in the level of technology use are needed to achieve a meaningful impact on the country´s average performance indicators for the beef sector. Modeling results show that when seeking higher productivity,efforts should focus on farmers with more than a basic level of technology use. Alternatively, welfare concern and other supports should focus on a relatively large number of small cow-calf operations with a very basic level of technology use and limited impact on the sector´s productivity.

Keywords: Sustainable Intensification, SDSN, Technology Adoption, Livestock Production Modeling.

THE GRAIN-FOR-FEED PLAN: A SUPPLY-SIDE REFORM CASE STUDY IN INNER MONGOLIA AUTONOMOUS REGION OF CHINA

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Abstract

Based upon the practices in Inner Mongolia Autonomous Region, this paper presents the setting of the "Grain-for-feed Plan" (hereinafter called the Plan) initiated by the Ministry of Agricultural and Rural Development on behalf of the Central Government of China, exams the willingness, economic returns, social impacts and suggestions for future development of the Plan. It concludes that (i) the Plan is welcomed by both the local government and grassroots people in transiting local agricultural patterns and increasing farmer's income; (ii) this Plan is having and will have an deep and long impacts on shaping future agricultural patterns and agribusinesses and modernizing future agricultural industries and rural societies; (iii) there are problems and challenges that need to be solved in order to smoothly push and implement this Plan; and (iv) policy suggestions including expanding publicity of the Plan, increasing transparency in implementation, equal participation and management of farmers are discussed.

Keywords: Grain-for-feed Plan, Supply-side Reform, Inner Mongolia, Agricultural Structural Changes, Cost-Benefit Analysis

POTENTIAL USE OF FOOD WASTE AS A BIORESOURCE: CASE STUDY FROM JELGAVA REGION

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Abstract

The increase in population and the development of bioeconomy is the main reason for change in the previous policy on biological resource utilization (European Commission, 2012). Nowadays a great deal of focus has been set on climate change research, decreasing the amount of waste, exploitation of renewable biological resources in the manufacturing and services sectors, thereby adjusting to the climate change, reducing the harm on the environment, decreasing the amount of waste and promoting sustainable development (Owusu, Asumadu-Sarkodie, 2016). However an establishment and consideration of a unified policy regarding the sustainability of waste utilization is needed in order to fulfill the objectives, which are set in Latvia and the rest of the world. The demand regarding sustainable development of waste management have become more significant both in Latvian and international political documents, thereby promoting the development of bioeconomy and sustainable utilization of biological resources. There has been limited research regarding the potential of waste in Latvia due to the fact that the existing research points out that the waste landfills are composed of about 30-50% biological waste (Teibe, 2015). Therefore there are limited possibilities to conduct a broad and comprehensive research on biological waste due to the fact that each household has a different set of habits regarding waste utilization and disposal. Furthermore, there is a necessity for promoting waste disposal and recycling in the public catering sector. Taking in consideration the potential of acquiring biomethane in comparison to the rest of the types of waste, it has not been fully utilized and estimated.This study focuses on surveying employees of the public catering field and food trading enterprises in Jelgava region. Survey was conducted with intention to find out the amount of food waste made by the companies and the types of disposal and further recycling they make use of. Furthermore, a survey was made for household members of the Jelgava district with intention to find out how food waste is used, their opinion regarding food purchasing, exploitation and disposal habits and the possibilities how food waste can be further utilized or recycled. During study it was concluded that food waste is bioresource with high usage potential for sustainable development of Jelgava region.
Keywords: Food Waste, Bioresources, Potential.

BEST INNOVATIVE APPROACH TO MINIMIZE POST HARVEST LOSSES WITHIN FOOD

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Abstract

It is expected that total food consumption will especially increase in strong economies due to growing world population and changes in consumption habits. This situation increases the pressure on resources and causes negative effects on the environment and health. Reducing losses in the fresh fruit and vegetable sector also contribute to resource efficiency while creating economic opportunities. In addition, policies aimed at reducing post-harvest losses and assessing food waste developed in countries are also causing new markets for secondary raw materials.

"Innovative Approaches to Minimize Post Harvest Losses within Food Chain "project is supported by the Ministry of the European Union and it is carried out under the coordination of Central Research Institute of Food and Feed Control in Bursa. Project stakeholders are General Directorate of Agricultural Research and Policies (TAGEM), Gaziantep University (GU), Bursa Metropolitan Municipality (AGRICULTURE INC.) and Bursa Commodity Exchange (BTB) from Turkey. Overseas stakeholders of the project are Food Canning National Technology Center (CTC) from Spain, Dunarea De Jos University (UDJ) from Romania and Food Association (IFA) from Austria. The project aims to reduce post-harvest losses and to improve the quality, safety, and marketability of selected horticultural products by developing a training package that meets vocational training needs in the post-harvest sectors (food supply chain).

Seminars, training meetings, conferences related to the project will be organized, technical information will be transferred to the relevant authorities and officials. The seminars and training meetings to be held for this purpose are of great importance, and raising the level of education of the target group in the fresh fruit and vegetable sector will create awareness. In addition, E-Modules to be prepared in the framework of the project will be continuously available to all interested parties.

The report will include post-harvest losses in the fresh fruit and vegetable sector, the current situation regarding the assessment of food waste and the training needs of the sector employees. Also, it reveals the causes of food losses in the post-harvest sectors in Turkey and project partner countries and the vocational training needs of the sector workers to reduce these losses.

Keywords: Fruits, Vegetables, Post-Harvest, Losses, Erasmus+ 2017-1-TR01-KA202-045709

Aknowledgements: Erasmus + Project „Best Innovative Approach to Minimize Post Harvest Losses within Food Chain for VET" [POSTHARVEST] , Project number: 2017-1-TR01-KA202-045709

EFFECTS OF DIFFERENT SUBSURFACE DRIP IRRIGATION APPLICATIONS ON YIELD AND QUALITY PARAMETERS OF ALFALFA

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Abstract

Nowadays, the majority of soil and water resources are used for agricultural production. Despite the world population are increasing day by day, water and soil resources are declining due to reasons of various uses. People can meet the needs by conservation of soil and water resources, improvement, development and obtaining more products in unit area by using less water. In order to obtain expected benefits of irrigation, it is essential to selectappropriate irrigation techniques, project planning, installation. Irrigation system should be operated in accordance with the objectives and water requirements should be covered at appropriate irrigation time.Water is one of the most important inputs for alfalfa plant. Insufficient knowledge on soil-plant-water relations, using of inappropriate agriculture techniques and inadequate production environment affect alfalfa production quality and amount negatively. Water requirements of plants vary according to growing season and region therefore irrigation planning is crucial. Depending on the amount of water applied during the growing season may cause decline in yield and quality. In this study,evapotranspiration, irrigation water requirement and water use efficiency of alfalfa irrigated by subsurface drip irrigation has been determined in Menemen Plain. Irrigation applications has been applied the completion of the missing moisture to field capacity depth of 0-60cm.With this study, alfalfa plant which has importance for animal nutrition, and effects of the method has been determined on the yield and quality. Furthermore, the main objectives of the project are increased profitability and saving water by subsurface drip irrigation and sustainable alfalfa production.
Keywords: Subsurface Drip Irrigation, Alfalfa, Soil.

BREAKING YIELDS IN RICE PRODUCTION: HIGH YIELDS OR HIGH PROFITS?

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Abstract

Uruguay is the most export-oriented rice producing country in the world. The annual production rounds 1.4 million metric tons (TMT), more than 96% of which is exported globally. The average yields obtained at the national level are among the highest in the world. In the last 5 years, the average yield surpassed 8.1metric tons per hectare, with a maximum of 8,686 kg/ha in 2014/15. In the last years, the National Institute of Agricultural Research (INIA) of Uruguay has been running a research project, in coordination with farmers and millers, with the objective of generating integrated crop management practices capable to increase yields by at least 10% compared to those obtained with the technology currently used by the top 5% rice growers. The challenge is the generation of economically feasible alternatives to increase productivity with respect to that obtained by producers in the top quintile.

This article shows the results of the cost-benefit analysis performed on different technology alternatives defined for six different locations in the East of Uruguay, which is the in the traditional rice-producing region. Uruguay plants annually about 170 thousand hectares of rice. Sixty-percent of this area is located in the East part of the country. With the objective of defining the best-improved alternative for each of the six locations, an experiment was run for three consecutive years starting with 18 alternatives, three per location. After a screening process to discard the less promising ones, one alternative per location was selected for the production and economic analysis inthe last crop season involved in the study (2016/17). Three different plots of 7-10 ha each, were included in the last year in each location.

They were installed on fields belonging to commercial firms consistently ranking in the first quintile in terms of yields. The first plot corresponded to the witness, the second one corresponded to the selected best alternative, and the third one corresponded to an exact copy of what the farmer was doing that year.In essence, the treatments were defined on the basis of four factors: a) rice variety; b) density of seeds and seed treatment; c) levels of fertilization; d) disease control practices (Pyriculariaoryzae), including use of resistant cultivars. In all cases, the calculation of income and costs was performed using the same set of prices. The money values were expressed per hectare in terms of both US dollars and units of 50-kilo bags.

The obtained results showed that the alternatives were clearly superior in terms of the expected profits in only two of the six locations under analysis, for the conditions expressed in the 2016/17 season. In both cases, the gain was explained mainly by differences in performance achieved with the use of a new cultivar released recently in substitution to the old one currently used by farmers, along with new management practices associated with it. With an expected increase between 27% and 29% in yields, profits multiply from a minimum of 1.9 times to 14 times. The key issues of the new variety apart from being more productive, was its resistance to Pyricularia, which derived in a dramatic

reduction in costs related to disease control. In the remaining locations, the technological alternative did not mean an advantage compared to the witness, even assuming a significant loss in any of these cases. In all cases, the benefits obtained by the new technology package were offset by the rising costs implied by this change. In one of the cases, the use of the new technology was indifferent to the old one, from an economic point of view. In the remaining cases, the increment in costs more than surpassed the gains in production; the alternative technology directly led to an economic loss that ranged from 12% to 150%

Conclusions should be taken with caution since the analysis was performed with the production results for only one year, even though a sensitive analisis was performed. Nevertheless, some elements deserve to be highlighted. The results seem to confirm the need for a thorough review in the cost structure at the fieldlevel.Minor adjustments in the technology, such as the election of the variety, could be the difference between getting a positive or negative economic outcome.

Keywords: Rice, Economic, Production Costs, Technology,

MANAGING POST HARVEST LOSSES FOR IMPROVED FOOD SECURITY IN NIGERIA: A CONCEPTUAL REVIEW

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Abstract

The problem of post-harvest losses among Smallholder farmers in developing countries is a recurring phenomenon which affects the socio-economic well-being of farmers. It also determines the achievement of sustainable food security in an economy. Food losses occur when harvesting, handling, processing, marketing, packaging and storing agricultural produce. In Nigeria, post-harvest losses have risen to over $9 billion annually which is estimated to be about 50% of foods produced in the country. In fact, crops like fruits and vegetables experience more than 50% of such losses. Consequently, the paper contains a conceptual review on the nature, causes, impact and strategies involved in managing postharvest losses of food crops and products in Sub-Saharan Africa with particular emphasis on Nigeria. Relevant texts, journals, online articles and other publications were selected and reviewed in preparing the paper. The discussion reveals that post-harvest losses occur at different stages of the value chain and they differ based on the type of crops involved. Fruits and vegetables undoubtedly incur the greatest percentage of loss. It also reveals that a significant reduction in post harvest food loss in Nigeria can reduce the need for food importation and significantly increase food availability in the country. Therefore, the challenges of managing post harvest losses are not insurmountable. What is needed here is to create awareness among farmers through capacity building, extension services and practical demonstrations of post harvest loss mitigation technologies to ensure quick adoption and wider acceptance. Similarly, relevant stakeholders should collaborate to develop a sustainable and workable eco-system for managing post harvest losses through value added market-driven programs.

Keywords: Post-Harvest Losses, Food Security, Food Crops, Food Loss Management, Nigeria

ECONOMIC EVALUATION OF HYDROPONIC FODDER FEEDING TECHNOLOGIES

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Abstract

Livestock fodder and feeding technologies are one of the key determinants of the economic performance of livestock farms. Scientists note that innovative feeding technologies are one of the most important economic factors in livestock farms.Thisresearchdeals with economic evaluation of a hydroponic fodder feeding technology dedicated toincreasing dairy and beef cattle performance,at the same time reducing production costs and cost of the produce as well as improving quality of the produce.

Researchers have emphasized that selection of the most appropriate feeding technologies is a highly relevant issue compared to other factors in light of the efforts to improve performance and viability of livestock farms. A properly developed fodder diet is one of the key determinants of milk cost, composition, and quality. Proteins and fats contribute considerably to the quantity and price of collected milk. The revenue generated from milk depends not only on the quantity sold, but also on its composition.

Research aim:evaluation of economic benefit of the hydroponic fodder feeding technology for livestock and impact on financial indicators of farms. In view of the research aim, economic benefit of application of the technology was analysed at five livestock farmssubject to the experiment of feeding hydroponically sprouted grasses to cows and fattening livestock.

Research was carried out in eight Lithuanian farms in 2017-2018.

Analysis of sprouted grass feeding to fattening cattle has shown thatthe costs per kg of weight gain for the experimental cattle group were 3.02 % higher than the costs per kg of weight gain for the control group. This is partially due to the fact that the sprouted grasses were fed in addition to the conventional fodder diet. Taking into consideration that the costs of the sprouted grasses accounted for approx. 7 % of the total costs, and the difference between costs per kg of weight gain was only approx. 3 %, the economic benefit of the sprouted grasses was considered to have been determined. Alfalfa sprouting was found to have been the most costly due to the alfalfa seed price 4.92 EUR/kg. To compare, the price on other seeds was 0.25-0.29 EUR/kg.Average weight gain per animal in the experimental group of fattening cattle was 3.24 % higher than in the control group.

Economic results of feeding dairy cows under the innovative technologies have demonstrated that the cost of 1 litre of milk at the farms exercising the experimental feeding technology was ranging from 0.26 to 0.32 EUR/kg. The costs on fodder in the total cost comprised0.12-0.13 EUR/kg, including the sprouted grasses, which accounted for approx. 10 - 20 %, depending on the kind of the sprouted grass. Financial results of milk production both for the experimental and the control group were negative in the experimental period. Profit was generated from sale of milk during one month only. Nonetheless, milk yield of the cows fed with sprouted grasses was 10-15% higher than of the cows fed with conventional fodder.Total milk production costs (costs of sprouted grasses excluded) showed downward trend, decreasing in proportion to the reducing volume of milk.

Keyword: Economics Indicators, Hydroponic Fodder Feeding Technologies, Economic Benefit, Innovation, Livestock.

STORAGE LIFE MANAGEMENT OF SOME RAW VEGETABLES

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Abstract

There is a high demand of fresh fruits and vegetables and therefore we must know how to keep and handle them for improving their storage life. When keeping fresh fruits and vegetables for sometimes there are many factors that affect the storage life and quality.

After harvesting the fruits and vegetables from the field, losses may occur before they can be marketed due to the wrong storage and transportation practices. The paper specifiesthe factors that influence the storage life of fresh fruits and vegetables as well as the influence of the storage parameters on their shelf life.

Hereinwesummarizethe specific loading requirement for the refrigerated storage of fruits and vegetables, the parameters at normal and controlled atmosphere storage, and the factors that influence the postharvest storage life for tomatoes, cherries, grapes and figs.Also are presented the parameters for normal atmosphere storage such as temperature and relative air humidity, as well as those for controlled atmosphere storagesuch as temperature, relative humidity, oxygen and carbon dioxide concentrations, and,where is the case, for ethyleneamount.

The paper is pointing out the variation of the storage parameters in controlled atmosphere with species and cultivars, all of those finally influencing the storage life of the considered fruits and vegetables.

Reported informationsare recommended specially for the industry that keeps large quantities of fruit and vegetables in warehousesbefore distributing to the retail.

Keywords: Raw Vegetables, Refrigerated Storage, Controlled Atmosohere, Losses

Aknowledgements: Erasmus + Project „Best Innovative Approach to Minimize Post Harvest Losses within Food Chain for VET" [POSTHARVEST], Project number: 2017-1-TR01-KA202-045709

CAUSAL RELATIONSHIP BETWEEN AGRICULTURAL R&D SPENDING AND AGRICULTURAL OUTPUT: THE CASE OF TURKEY

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Abstract

The last 40-yearswitnessed the structural transformation process, in which the share of the agricultural sector in the world economy has declined compared to the share of non-agricultural sectors.This process has led to differences of opinion among policymakers and academicians whether it has an impact on the acceleration of economic growth and the reduction of poverty. Although the global agricultural GDP between 1970-2016 increased from 0.9 trillion dollars to 3.0 trillion dollars in real terms, the share of agriculture in the real global GDP decreased from 4.9% to 3.9% (FAO, 2018). On the other hand, an increasing number of empirical studies recently found that agricultural growth is more effective in combating poverty than non-agricultural growth. (Ravallion and Datt, 1996, Tiffin and Irz, 2006, Suryahadi, Suryadarma and Sumarto, 2009). In this context, increasing agricultural productivity and production has a strategic importance.

R&D investment plays an important role in innovation, increasing productivity and increasing economic growth. Research and development expenditures are carried out by the public and private sectors in order to increase the quality and productivity in agricultural production. The purpose of this study is to examine the causality between the agricultural sector R&D spending and agricultural product in Turkey. In addition, agricultural sector R&D spending will be classified as public sector and private sector, and the results will reveal which side has a stronger relationship with the agricultural product.

Keywords: R&D, Agriculture, Agricultural Output, Granger Causality, Turkey.

TARIMSAL AR-GE HARCAMALARI VE TARIMSAL HASILA ARASINDAKİ NEDENSELLİK İLİŞKİSİ: TÜRKİYE ÖRNEĞİ

Özet

Tarım sektörünün, tarım-dışı sektörlere göre dünya ekonomisindeki payının azaldığı son 40 yıllık yapısal dönüşüm sürecinin ekonomik büyümeyi hızlandırıcı ve yoksulluğu azaltıcı etkisi olup olmadığı konusu hem politika belirleyenler hem de akademisyenler arasında görüş ayrılıklarına neden olmuştur. 1970-2016 arası global tarım gayri safi milli hasılası reel olarak 0,9 trilyon dolardan 3,0 trilyon dolara çıkmasına rağmen, tarımın reel global gayri safi milli hasıladaki payı %4,9'dan %3,9'a düşmüştür (FAO, 2018). Öte yandan yakın tarihte artan sayıda ampirik çalışma, tarımsal büyümenin tarım-dışı büyümeye nazaran yoksullukla mücadelede daha etkin olduğunu ortaya koymaktadır. (RavallionandDatt, 1996, Tiffinand Irz, 2006, Suryahadi, Suryadarma ve Sumarto, 2009).Bu bağlamda tarımsal verimliği ve üretimi arttırmak stratejik bir öneme sahiptir.

Ar-Ge yatırımları inovasyonda, verimliliğin arttırılmasında ve ekonomik büyümenin artmasında önemli bir rol oynamaktadır. Tarımsal üretimde de kalite ve verimliği arttırmak için kamu ve özel sektör tarafından araştırma ve geliştirme harcamaları yapılmaktadır. Bu çalışmanın amacı, Türkiye tarım sektöründe yapılan Ar-Ge harcamaları ve tarımsal hasıla arasındaki Granger nedenselliğini incelemektir. Buna ek olarak, tarım sektörü Ar-Ge harcamaları kamu sektörü ve özel sektör şeklinde sınıflandırılacak ve sonuçlar hangi tarafın tarımsal hasıla ile daha güçlü ilişkisi olduğunu ortaya koyacaktır.

Anahtar Kelimeler: Ar-Ge, Tarım, Tarımsal Hasıla, Granger Nedensellik, Türkiye.

WILL NON-AGRICULTURAL EMPLOYMENT PROMOTE FARMERS' AGRICULTURAL INVESTMENT: A STUDY OF TEA IN CHINA

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Abstract

The rapid development of the city and the continuous improvement of the level of agricultural modernization have led to a large number of farmers going out to work. Non-agricultural employment has increased the income of farmers, but it also has an impact on the labor supply of farmers' agricultural production. Farmers will adjust the planting structure of the crop based on non-agricultural workers. De Brauw (2007) used the World Bank's survey data in Vietnam to show that migrant workers will reduce labor-intensive agricultural production and increase the production of land-intensive crops. In addition, farmers will also adjust their agricultural inputs. However, most of the existing researches focus on the production and management decisions of major food crops, but neglect the study of economic crops. Although economic crops have low yields, they are expensive, such as tea, coffee, and ginseng. In our research, the price of ordinary tealeaves and processed tea are ten times different. For example, the average price of tea after finishing in Fujian is 269.25 yuan / kg, while the average price of ordinary leaves is only 27.91 yuan / kg. There is a big difference between cash crops and ordinary agricultural products. We cannot study these special agricultural products with the idea of studying rice, corn or wheat. In addition, different farmers have different ways of dealing with production and management, especially between pure farmers and part-time farmers. Therefore, whether the non-agricultural employment of tea farmers can promote their processing investment will be the supplement and exploration of this research on the previous studies.

The interviewees of this paper are tea farmers from Fujian and Hubei Province of China, the largest tea producing area in China. The data we collected included a sample of 952 farmers in 38 administrative villages. Whether the scale of processed refined tea and processed refined tea will be the explanatory variable and the dependent variable is whether the farmer goes out to work. The control variable are the characteristics of tea farmers (Such as age, educational level, health level), family characteristics (such as tea planting area, family number), external environmental characteristics (such as terrain, village convenience). We uses the Probit discrete selection model and the Tobit restricted dependent variable model for regression analysis.

$$P(Y_1 = 1 | nonfarm; X') = \Phi(\beta_0 + \gamma \cdot nonfarm + \beta X' + \varepsilon) \quad (1)$$

$$Y_2^* = \beta_0 + \gamma \cdot nonfarm + \beta X' + \varepsilon, \quad Y_2 = \max(0, Y_2^*) \quad (2)$$

Both equations (1) and (2) are estimated using the maximum likelihood method. Among them, Y_1 means "whether or not the refined tea is processed", and the processed refined tea is taken as 1, and

the unprocessed refined tea is taken as 0. Y_2 represents the actual "scale of processed refined tea", and Y_2^* is a latent variable of "scale of processed refined tea". Nonfarm is a non-agricultural employment variable, and X^' is another control variable, including individual and family endowments, social capital, external support, geographic location, and county dummy variables.

In addition, we used PSM for endogenous testing. Based on the above measurement methods, this paper studies the impacts and differences of different types of non-agricultural employment on farmers' tea processing decisions by selecting different non-agricultural employment variables. We get the following conclusion:Off-farm employment has a significant negative impact on famers' refined tea processing decisions, with the improvement of off-farm employment rate of the family; the possibility and the scale of refined tea processing have significantly reduced.Different types of off-farm employment have significant differences in the impact of farmers' refined tea processing decisions. Compared with the local off-farm employment, off-farm employment in the field has a more negative impact on the refined tea processing decision of farmers.

Keywords: Off-farm employment, farmer, refined tea processing, tea, labor.

THE PERFORMANCE OF THE AGRICULTURAL SECTOR FOR THE CASE OF KOSOVO

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Abstract

In most of the countries of the world, agriculture has always been one of the most important sectors of national economy or at least the sector with the longest history. Agriculture improves the competitiveness of the sectors and helps in the achievement of sustainable economic growth. As a result, the performance of this sector represents an important challenge for development.

Kosovo as a country found in the Balkan Penisula, is a lower- middle country which had a modest economic growth since the end of the war in 1999. The main drivers of this economic growth are considered to be the private consumption and investments. But also the agriculture is considered as key sector for economic development as agriculture activities have traditionally been part of the daily life of many people living in the rural areas. In addition, due to the supply of agriculture labour, good climate and also due to some advantages that have been provided for free access to the European Union, the agriculture activities have to be considered a priority in the policy agenda of the government of Kosovo.

The aim of this paper is to evaluate the performance of the farms in Kosovo compared to some other transition economies in terms of technical efficiency and of exogenous variables that influence positive or negative the technical efficiency score. The data used for this paper are cross-section data from FADN and will be used to investigate the performance of Kosovo farms which is considered of substantial policy relevance because contributes to better policy making.

The results reveal that from 395 observations, on average a farm produces 17.7% of the maximum output. This low level of efficiency means that the rest of the potential output, 82.3 %, is lost due to technical inefficiency. Subsidies have negative effect on technical efficiency score, however is not found significant. As a result it is suggested that there should be more targeted agricultural policies
Keywords: Agriculture, Performance, Transition Economies, Policy, Kosovo.

HUMAN CAPITAL IN POLAND

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Abstract

Human capital is defined by scientists as the useful and valuable qualifications and knowledge acquired during the process of education and vocational training of the individual human being (Samuelson P. A., Nordhaus W.D. 1980).

Human capital can be regarded as a set of qualifications and skills, determining how advanced products or services can be produced by a given sector of the economy. This makes human capital one of the most important elements of economic processes, including economic growth and technical progress.

In the paper, in the part concerning the literature review, theoretical issues and conclusions from them were presented. In the empirical part, own analyzes and assessments were made. A new approach and goal as well as the added value of the research was to enrich the definition of human capital with the supplementation of the perspective of equal opportunities mainly for women. From these studies, the authors put forward the hypothesis that: equal opportunities in the labor market, in social life, in education and in public life brings economic benefits, and their lack - losses.

The aim of proving this thesis, specifying that equality of opportunities enriches the definition of human capital, the authors used their own research results. In addition, other empirical studies and data from the Central Statistical Office, Eurostat and expert opinions from institutions such as the European Institute for Equality of Women and Men in Vilnius (EIGE), the World Economic Forum and the OECD as well as 62nd Session of the Commission on the Status of Women, United Nations Headquarters, New Yorkwere used.

Keywords: Human Capital, Poland, Labor Market.

CREDIT FUNGIBILITY AND ITS IMPACT ON WHEAT PRODUCTIVITY IN FAISALABAD, PAKISTAN

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Abstract

Agricultural credit plays a crucial role in improving farm productivity by enabling the farmers'community to buy the inputs (such as fertilizers) timely. This study identifies the extent of credit fungibility and its impact on crop productivity. By using a multistage sampling technique 120 wheat growing farmers data have been collected, who obtained the loan from ZaraiTaraqiati Bank Limited (ZTBL) of Pakistan. Only 15% of the farmers have utilized the loan for wheat production, while the remaining 85% of the borrowers use the credit for domestic consumption, completely or partially.The reasons for the misappropriation of the loan include i) dowry (marriage expenditures), ii) repayment of previous loans, iii) personal consumption to meet family expenditures, iv) non-farm economic activities (such as retail shop, bakery, handicraft, etc.), v) court issues, and vi) construction at the farm/ house. Empirical results show a positive impact of credit on wheat production, however, this effect is reduced as farmer divert the amount of loan on other non-farm activities. Another interesting finding reveal that adoption of appropriate technologies (e.g., the use of recommended doses of seed; fertilizer; and irrigation especially on critical times) have contributed to the wheat production positively. These findings suggest that the credit schemes bundled with advisory and training services program may be helpful to realize higher agricultural productivity.
Keywords: Credit Fungibility, Misuse, Agricultural Credit, Wheat, Productivity.

FACTORIES INFLUENCE THE VALUE OF AGRICULTURAL REAL ESTATE

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Abstract

Factors determining the value (usable, marketable) of agricultural real estate are the features of this property, including legal, physical and location parameters of agricultural real estate as well as factors related to its use. They show consistency with the parameters of the valued property and reflect the conditions prevailing in the market to which the property should be valued.The problem of identifying market characteristics is related to the establishment of a catalog of significant and irrelevant features for clients in the real estate market. Properties of real estate depend on the type of market. One of the methods of dividing the characteristics of agricultural real estate distinguishes complex features, features concerning the surroundings of the object and features concerning the real estate itself. Another division of features based on the possibilities of their evaluation and measurement distinguishes features easy to measure, features difficult to measure, features whose states are determined in the following way: adjective and linear, features whose names suggest a positive impact on value (eg prestige) , and features suggesting a negative impact on value (eg noise) and featureswith names that do not have such suggestions.

The aim of this paper is to identify factors determining the value of an agricultural property. They were presented depending on the value of the property, and depending on the approach and method used in the valuation of agricultural property.Authors pointed out the 3 main questions:

- What is the definition of agricultural real estate?
- What is the value of agricultural real estate?
- What are the factors determining the valueof agricultural real estate?

The overview of the literature and legal acts was used. Authors focused on the example of Polish legal acts and national valuation standard.

Despite the fact that the Standards of Property Appraisers determine to a large extent the "typical" characteristics of agricultural real estate, the selection of features (other than obligatory) is not explicit and notional. Just as there is no unequivocal and equal effect of these characteristics on the value of the property. It is determined by the conditions on the local market, the demand and supply situation on this market, as well as the economic situation of the country, individual preferences of buyers and fashion. The factor that can multiply the market value of land is the potential for other than agricultural use. This applies in particular to land located on the outskirts of major cities, close to important transport routes or water reservoirs. Prices of such lands exceed the prices of typical agricultural land many times. Location is then the decisive factor affecting the value of real estate, and the sale indirectly affects the increase in the prices of other agricultural land.

The prices of agricultural land are also influenced by the possibility of using direct payments and other forms of aid for agriculture from European Union funds and the state budget as well as the prospect of increasing this support in the future. The observed increase in the profitability of some agricultural production trends and the export of domestic agri-food products also has an impact on the situation on the agricultural land market. The availability (or lack of) of land located in the State Treasury Agricultural Property Stock (ZSRWP) is also important.

Keywords: Agricultural Real Estate, Value of the Agricultural Real Estate, Market Value, Cadastral Value, Usable Value.

OAT IN HUMAN NUTRITION

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Abstract

Oat is an important grain in human nutrition with the content of about 13% fiber (2-8.5% β-glucan), 11-13% fat, highly unsaturated fatty acids, essential amino acids and phenolic compounds. In Turkey,oat consumption is used in the vastmajority of animal nutrition. The percentage of oats consumed as food is about 27%.Despite the increasing interest and demand for oat farming, the lack of commercially available commercial varieties to meet the needs of producers, high processing yields and low crop yield limit the spread of oat farming. In order to obtain high quality products, the food industrialists demand oats with easy husking, high yield, low ratio of the husk, and also high shelf life of oat based products.

ETI is one of the leading companies that produces original products using agricultural materials and alsohas the most contract farming practices in Turkey.In 2017, ETI had wheat cultivation in 25.000 decaresand white oat cultivation in 47.000decares by using contract farming with 350 farmers. ETI has used whole grain flours in its products under the brandof "Burçak" since 1970, and also "Form" since 1987. ETI has started to process oats in its own plant by using its own developed technology in the early 1990s and also made an important contribution to the use of oat in human consumption by producing "ETI Oatmeal Biscuits" under the brand of "Burçak".

ETİ uses 16.500 tons of processed oat per year in its products and supplies about 10.000 tons of oat by contract farming. ETI uses oats as the form of whole oat flour in biscuitsand also as whole oatmeal in mueslis.

ETI supports farmers by using contract farming and also oat consumption by developingoriginal bakery productswith high bioavailability and nutritional value.

Keywords: Oat, Contract Farming, Sustainability, Sustainable Agriculture.

İNSAN BESLENMESİNDE YULAF

Özet

Yulaf, yaklaşık %13 oranında lif (bunun %2-8,5'i β-glucan), %11-13 oranında yağ, yüksek oranda doymamış yağ asitleri, esansiyel aminoasitler ve fenolik bileşenler içeriği ile insan beslenmesinde önemli bir tahıldır. Türkiye'de yulaf tüketiminin çok büyük kısmı hayvan beslenmesinde kullanılırken;gıda olarak tüketilen yulafın oranı yaklaşık ise %27'dir. Yulaf tarımına ilgi ve talebin artmasına rağmen, üreticilerin ihtiyaçlarına cevap verecek yeterli sayıda geliştirilmiş ticari çeşitlerin bulunmayışı, işleme firelerinin yüksek, tarla veriminin düşük olması yulaf tarımının yaygınlaşmasını kısıtlamaktadır. Gıda sanayicisi kaliteli ürün elde edebilmek için kavuz oranı düşük, kavuzu kolay ayrılabilir ve randımanı yüksek yulaf talep etmektedir. Ayrıca yulaf bazlı gıda maddelerinin raf ömürlerinin de uzun olması istenmektedir.

Tarımsal girdileri kullanarak özgün ürünlere dönüştüren Türkiye'deki lider kuruluşlardan biri olan ETİ, 2017 yılında 350 çiftçi ile sözleşmeli tarım yaparak 25.000 da alanda buğday ve 47.000 da alanda beyaz yulaf ekimi yaptırmıştır. 1970'li yıllarda "Burçak" ve 1987 yılından itibaren de "Form" markası altında tam tahıl unlarını ürünlerinde kullanan ETİ, 1990'lı yılların hemen başında kendi geliştirdiği teknolojiyi kullanarak yulafı kendi tesisinde işlemeye başlamış ve yine "Burçak" markası altında "ETİ Yulaflı Bisküvi"yi tüketicilere sunarak, yulafın insan tüketiminde kullanımına önemli bir katkıda bulunmuştur.

ETİ, yıllık 16.500 ton işlenmiş yulafı ürünlerinde kullanmakta ve ihtiyacının yaklaşık 10.000 tonunu sözleşmeli tarım ile tedarik etmektedir. Yulafın bir kısmını tam yulaf unu halinde yulaflı bisküvilerde ve bir kısmını da tam yulaf ezmesi olarak müsli çeşitlerinde kullanmaktadır.
ETİ; sözleşmeli tarım ile hem çiftçiye destek olmakta hem de yulafı, unlu mamullerde kullanarak biyoyararlılık ve besin öğelerini ön plana çıkaran özgün ürünler geliştirip tüketiciye sunmaktadır.
Anahtar Kelimeler: Yulaf, Sözleşmeli Tarım, Sürdürülebilirlik, Sürdürülebilir Tarım.

AGROTOURISM OF A REGION BETWEEN THE THREE STATES

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Abstract

Gora is a geographic region extending into three countries: in the northern part of Albania, in the southern part of Kosovo and northwest Macedonia, including an area of 500 km², with 30 villages and a population of 24,000 (twenty four thousands) .

The main purpose of this paper is to promote the natural potential, the importance of the development of tourism and the challenges and opportunities of development in Agrotourism and a region between the three countries.

The population of Gora has no native language, regardless of the languages of the respective countries, neither the Albanian nor the Macedonian language, yet they have returned to a union bridge between the three states.

Cheese -potatoes and sheep is the pyramid of this population. Folk costumes, songs and weddings are a centuries-old aura. Cultural heritage is the unique treasure of this people.

Women themselves work with loom handcraft of diffrent folk costumes and within a family you will find three types of costumes: for girls, women and ladies.

Competitions with Horses, wrestling, stone throwing, bull fights are activities that have been preserved since pagan times and are practiced every day.At earlier times Gora, is prominent for the master of cuisine in some specialties. Historically, they are known as gourmet and as a craftsman.

The craftsmen of the confectioners have been exercising Gorani in the Ottoman Empire over the centuries. They also served in the kitchens of the sultans in Topkapi Saraj, as hospitals and avengers. Sweets are preserved to date and transmitted to generations. Gora offers its very important nature, history and culture in the field of tourism.

The development of mountain tourism has enabled the realization of sports activities such as: mountaineering, skiing as well as the inclusion of summer tourism in the plateau of Shishtavec, landscape in nature monuments etc.

Gores' material and spiritual legacy is also his contribution to the treasury of global world culture. There are 45 inns, which are turned into models of agrotouristic farms, where the tourist is known for the rude sheep and the milking of the dairy, with the potato planting and browing, the harvesting of the rye, the running of the horse, the bread and the cheese, the horseradish and the pie, the praying of dry meat and sausage, the harvest of the grass and the sowing of the mill, the harvesting of bee honey and honey processing, the harvesting of fruits and the making of peppers, etc.-Tourism up is equal to Agrotourism.

Gastronomy is another element of the cultural heritage of the province of Gora. Through the gastronomy the whole spiritual world of women is expressed. This area offers tourists a rich and tasty traditional cooking. Agricultural and forestry products are used as raw materialsGora organizes a fair between the three countries presenting the dishes that this area offers for tourists and includes dishes that have as raw material agricultural and bakery products will also be presented all varieties of potatoes cultivated in the Shishtavec Municipality. The popular gaming organization: wrestling and horse racing. They are sporting activities that have been practiced early in this province, in pagan times. Horse racing has been a widespread sport especially in weddings. The first three places will be rewarded with gifts.

Also widespread on the last day of the wedding is the wrestling-puttiness sport.Agro-tourism farms in this area offer services to look at, services performed jointly or individually by visitors, products to try, buy or donate.

A good foundation for livestock development is the high share of pastures and meadows. In spite of natyroe circumstances, the number of livestock growers is small and the number of cattle and sheep has declined especially in recent years.Today's remains remain a traditional activity of this region, and there are 225 private businesses that deal with breeding and beekeeper activities.

The possibility of keeping bees and the quality of honey is very high, thanks to the flora and the clean environment, as well as the insecticide and other chemical uses.It is worth noting that in this area there is a considerable amount of medicinal herbs. Tourists have the opportunity to harvest blueberries, wild roses, blackberries, and many others.Hundreds of tourists are turning their eyes to this area and agritourism farms 1400 feet above sea level.

Keywords: Agroculture, farming, mountain tourism, economic relation between three state, natural-cultural heritage.

EFFECT OF DIFFERENT SUBSURFACE DRIP IRRIGATION APPLICATIONS ON SOME QUALITY PARAMETERS OF TOMATO

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Abstract

Water is one of the most important input for tomato production. Lack of information in tomato production, using the inappropriate agricultural techniques and some deficiencies in growing areas affect yield and quality of tomatoes adversely. The quantities of water need by plant vary according to growth period and region and determining irrigation schedule is very important. In the growing season yield and quality of tomatoes can vary depending on amount of water applied in production stages. In case of excessive irrigation defloration,decrease of fruit formation and decrease of some quality parameters may occur whereas some quality parameters may indicatebetter results however, deficientirrigation may lead to low yield.The study aims to determine the effects of different irrigation treatments and water stress on crop yield and some quality parameters of tomato. The research was conducted at International Agricultural Research and Training Center Menemen / İzmir / Turkey under ecological conditions in summer of 2018. Tomatoes were irrigated by subsurface drip irrigation with four different treatments as S1: full irrigation, S2: 75% of S1, S3: 50% of S1,S3: 25% of S1. Irrigation water amounts were determined according to available soil water level. Average fruit weight, fruit length, fruit firmness and pH were measured,total soluble solids, and ascorbic acid contents were analyzed. According to the results, it was shown that, average fruit, fruit length values increased as the amount of irrigation water increased, the highest (fruit firmness)was measured in S2 treatment, the lowest pH values measured in S1 treatment, the total soluble solids values increased as irrigation water amount decreased and ascorbic acid contents values were higher in S3 and S4 treatments than S1 and S2 treatments which are relatively consist more irrigation water.
Keywords: Irrigation,Subsurface Drip Irrigation, Tomato, Quality Parameters, Soil Moisture.

USING BIOPLASTICS IN FOOD PACKAGING

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Abstract

Packaging is an essential process to obtain a stable food for both of the producers and consumers. Primary function of packaging is to protect the foodstuffs against to physical, chemical, and biological spoilage during the shelf life. The shelf life period is very much dependent on the conditions of the packaging and storage conditions of the foodstuffs. This period determines not only the stability of the foods but also affects the safety of foods. Exploring the plastics in food packaging gained flexibility in storage and transportation conditions, when compared to glass, to the producers. Using plastics have also decreased the cost of the packaging materials. However, many concerns are being reporting tremendously on synthetic plastics in the food industry.Because, consumers have a general consensus about the sustainability ofthe world, where they believe that plastics are threatening the whole ecosystem. The fact that, globally we waste millions of tonnes plastics to the environment. And, those plastic debris threaten the whole ecosystem, where we share with plants and animals. Nowadays, biodegradable packaging materials, edible films and coatings are therefore respectfully accepted by the consumers. For a sustainable ecosystem, starch, proteins (e.g. casein, whey, soy, gluten, corn maize), polylactic acid, polyhydroxyalcanoate, polyhydroxybutyrate, chitosan is used for their biodegradability both in researches and industrial applications in food packaging. Relatively high cost and mechanical features of the natural biodegradable polymers versus to the synthetic plastic polymers are the limiting factors for their usage in food packaging. Besides, some controversial reports are being reported about the bioaccumulation of plastics in marine life, and its effects on the human diet. The current review will therefore address the question;should we evaluate bioplastic usage in food packaging rational or not?
Keywords: Biodegradability, Bioplastics, Food Packaging, Life Cycle Assessment, Sustainability.

THE FACTORS BEHIND THE EMERGENCE OF THE PRIVATE AGRICULTURAL EXTENSION IN ALGERIA: THE CASE OF THE CITRUS SECTOR

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Abstract

In order to improve the effectiveness of public agricultural advisory systems, many States disengaged themselves from this field fostering the emergence of private services of several types, whether in developed countries or in developing countries.

In Algeria, despite the questioning of the services provided by public organizations whose results are deemed to be mixed, the State did not undertake, even partially, the privatization of the agricultural extension. However, farmers operating in sectors with high added value andwhere investments are at high levels (such as fruit or vegetable production) call on privateadvisersof input-supplyingfirms or public officials or retirees, whogetinformally paid. We examined the case of the wilaya of Chlef, which is situated in the northwestern area in Algeria, and whose citrus production is high, and we noticed that this trend is confirmed.

The citrus fruit growers of this wilaya have been surveyed whereas semi-structured interviewshave been conducted with the various public and private stakeholders. This allowed us to identify the factors that favor the use of private advisory by farmers and the ones we must take into account in case of the privatization of at least a part of the agricultural extension in Algeria. It turns out that one-third of citrus fruit growers who have been surveyed are convinced of the positive impact of the private advisoryon their income and the improvement of their yields and agree to pay the private advisers. While the educational level and geographic level of the target market (local, regional or national) are the factorswhichfavora largercall on of citrus fruit growersto theprivateagricultural advisors.
Keywords : Algeria, Agriculture, Citrus Fruit Growing, Extension, Privatization.

CAN COOPERATIVES INCREASE FARMERS' INCOME: A STUDY OF TEA IN CHINA

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Abstract

China is the largest producer and the second-biggest exporter of tea in the world. In recent years, small farmers face more serious difficulties, such as financing problem, production input problem, lack of market information and so on. Reardon (1999), Austin，(1981) and Swinnen (2007) found that these problems make it easy for them to be "squeezed out" of the market, which has lower profit. The purpose of this paper is to verify that which of the following methods is more suitable for Chinese tea farmers. The method that such farmers could avoid being "squeezed out" of the market is transforming the present value chain into a compact value chain based on contractual relationship, which is more competitive, such as industrial clusters and cooperatives. Narrod (2009) and Bell (2009) believed that farmers could avoid "squeezed out" from the market by joining the value chain in forms of cooperatives, enterprises etc.. For example, Goldsmith (1985),Key (1999) and Masakure (2005) indicated that by joining the value chain, tea farmers could obtain the necessary technology, information, and other related services, therefore they could improve product quality and income. However, Stiglitz (1999), Schwartz (1999), Liu (2003) believed that it may cause more conflicts between farmers and organizations if farmers accede to the value chain.

The interviewees of this paper are tea farmers from Fujian and Hubei Province, in China.The data we collected included 952 farmers in 38 administrative villages.The purpose of this paper is to analyze the influence of tea farmers participating in the value chain on their tea income. Assuming that tea farmers' income（Y_i） is a linear function of explanatory variables（X_i） and the willingness of farmers to participate in the value chain（Z_i）, the regression equation is assumed to be:

$$Y_i = aX_i + bZ_i + \varepsilon \quad (1)$$

In the above formula,Y_i denotes the income of tea farmers, X_i denotes the variable of exogenous variables that measure the personal characteristics, family characteristics, production and management characteristics of tea farmers, and Z_i denotes the endogenous selection variable. When Z_i is an exogenous variable, it can be analyzed by OLS to get the influence of tea farmers participating in the value chain on their income.

In (1), we propose a linear function of farmers' participation in the tea value chain on economic performance. Because of the endogenous nature of the decision-making behavior variables of farmers, the tool of neighbor behavior is introduced into the model. (2), Z_i^* is a linear function of exogenous variables W_i (neighbor behavior) and random perturbation term μ.

$$Z_i^* = cW_i + \mu \quad (2)$$

In addition, the behavioral variables of farmers participating in the value chain are:

$$Z_i = \begin{cases} 1, & if\ Z_i^* > 0 \\ 0, & if\ Z_i^* \leq 0 \end{cases} \quad (3)$$

The following conclusions are expected from the analysis. First,due to the existence of transaction costs and market risks, compared with those tea farmers who create value chain organizations, tea farmers who join anexisting value chain organization have higher expected income. Second, compared to tea farmers joining a tea cooperative, farmers joining a tea business have higher expected income.This is mainly because usually the co-operatives are established in the area producing lower quality tea while enterprises already occupied areas producing better quality tea. In this situation, farmers will sell their products to enterprises to get more profits. These conclusions may arouse researchers' reflection and discussion.

This article has the following contributions. First of all, tea is an important product of the Silk Road historically, affecting people's life and regional economy.Therefore, the study of the current Chinese tea value chain provides meaningfulreference for enhancing the competitive advantage of tea products. Secondly, this paper analyzes the influence of the tea farmers' behavior of joining or creating the value chain organization to avoid being squeezed out of the market, and the findings could indicate that the ideal way of avoiding extrusion for tea farmers is participating in an enterprise. Finally, we analyze the impact of tea farmers' decisions on their earnings, which can provide decision-making reference for farmers.

Keywords: Tea, Value Chain, Organizational Form, Treatment Effect Model, Cooperatives.

THE IMPLICATIONS OF FINANCIAL AUTONOMY OF THE RURAL MUNICIPALITIES IN LITHUANIA: THE SITUATION AND TRENDS

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Abstract

Financial autonomy of municipalities depends on the volume of the revenues and rational expenditure management. Foreign and Lithuanian researchers (Friedrich et. al. (2004), Shoup (2004), Oulasvirta, Turala (2005), Wei (2014), Astrauskas, Striškaitė (2003), Civinskas, Tolvaišis (2006), Davuliset al. (2013), Slavinskaitė (2014) et. al.)have analysed common implications in autonomy of municipalities, but few authors have looked deeper into the issues pertaining to rural municipalities.

Funding of the Lithuanian municipalities in Lithuania is based on the model of interbudgetary redistribution of taxes. Property taxes collected into the municipal budgets, personal income tax are redistributed under the approved methodology. The redistribution involves deduction of a share of the personal tax income from economically more capable municipalities (the donors) into the Public Treasury account, and the funds accumulated using this method are redistributed to support the municipalities which do not collect sufficient revenues (the recipients). The research deals with the implications and trends of the redistribution model.

The redistribution model has been found to not promote financial autonomy of the municipalities and efficient use of local resources in collection of revenues. Following the redistribution, the donor municipalities find themselves in a worse financial situation than the recipient municipalities, which receive the support. The budget revenue and expenditure per capita in the donor municipalities are considerably lower than in the recipient municipalities. Incentives for the economically weaker municipalities to explore the autonomous means for improvement of own economic, financial, and social situation are becoming scarce, considering that improvement of the situation would potentially result in the loss of additional revenue secured by the redistribution for the supported municipality.

The research has demonstrated the following trends: only threemunicipalities in Lithuania are the donors, and all of them are the urban municipalities, while the rural municipalities are the recipients. 13 to 46 % of revenues of the donor municipalities are subject to redistribution. The funds received as a result of the redistribution account for almost the fifth of the entire municipal budget of the majority of recipient municipalities, or even the forth in certain municipalities. The redistributed revenues prevail in the recipient municipalities.

Keywords: Financial Autonomy Of Rural Municipalities, Revenue And Expenditure Autonomy, Economic Freedom.

WHAT HAPPENS TO SMALL DAIRY FARMERS AFTER A FREE TRADE AGREEMENT? A COSTA RICAN CASE STUDY

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Abstract

According to the Free Trade Agreement signed by Costa Rica in 2008 with Dominican Republic, Central America and United States, milk import tariff reliefs will undergo a linear reduction from 59,4% before 2008 to 0% in 2025. Most dairy farms in Costa Rica are small and on the other hand, dairy industrialization is owned by few companies with large market power; the imminent free trade agreement is expected to affect prices and therefore, the structure of the local supply chain. In order to estimate the effects of the FTA on the structure of the supply chain we have conducted a Two Stages Least Square (TSLS) estimation of local demand and supply curves for fluid milk. Then a Monte Carlo simulation was conducted in order to estimate the probabilities of small farmers to maintain a profitable business by triggering both, feed prices and milk prices. Our results from TSLS suggest that import prices, being lower than domestic prices, will cause the demand to increase and national production is expected to decrease, creating a gap between both. This gap is expected to be filled by imported milk, since according to our Monte Carlo results; there is a 38.4% probability that small farmers would have losses, which would eventually change the structure of the current supply chain because of the exit of many small dairy farmers.
Keywords: International Trade, Small Farmers, Milk.

ORANGE BUYING AND CONSUMPTION HABITS: A SEGMENTATION OF TUNISIANS CONSUMERS

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Abstract

The current study focuses on understanding Tunisian consumer behaviour in relation to fresh oranges: among others level and frequency of consumption, different uses, establishments purchase, buying motives and quality perception. It further seeks to identify and describe consumer segments based on the main factors that influence consumer purchase intention. The data used was obtained from a face to face survey to 398 consumers conducted during March 2018.

As the number of variables used in this study to explain determinants of purchasing intention of oranges is quite extensive, an exploratory factor analysis was performed to facilitate the interpretation of the variables. The results indicated that the main determinants factors of consumers intention to purchase fresh oranges are associated with "nutritional and health benefits", "budget constraint", "taste and freshness", "purchasing context" and "origin and variety".

Three consumer segments were identified using Cluster analysis and based on determinants of purchase intention: segment 1 (22.1%), segment 2 (47.7%), and segment 3 (30.2%).

The study deals with a little explored topic, thus the identification of different determinant of fresh oranges consumption and socio-demographic features may provide an opportunity for the farmers to develop marketing strategies that will meet demands of different consumers.

Keywords: Fresh Oranges, Consumer Segments, Purchase Intention, Consumption, Tunisia.

ESTIMATING NUTRIENT ELASTICITY FOR TURKEY

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Abstract

Technological developments in food production and distribution affect the way food is accessed and consumed. Although access to food has become relatively easy recently, micronutrient deficiency, or hidden hunger, and obesity still remain as crucial problems in food consumption. These problems may be studied using the concept of nutrition demand in addition to food demand. Nutrition demand analysis can be used to examine the impact of changes in food prices on nutrient intake. In this study, we investigate the effect of a price change on the intake of different nutrients in Turkey by estimating a complete demand system. For this purpose, we created twelve aggregated food groups for foods consumed by households and then estimated Quadratic Almost Ideal Demand System (QUAIDS) by using Turkey's Household Budget Survey Data for the year 2003 in order to find expenditure and price elasticities for each food group. The reason for using year 2003 data is that it includes information about quantitiesof every food type classified according to ten-digit classification of individual consumption by purpose (COICOP). In addition, in order to estimate nutrient elasticities,we calculated the share of twenty-one different nutrients in the consumption of each food group by using food nutrient and calorie values data published byTürKomp National Food Composition Database. Then, using uncompensated elasticities and the shares of nutrients, we calculated nutrient elasticities for each nutrient. Empirical results suggest that increases in food prices have negative impacts on the intake of most nutrients. The largest nutrient elasticities were estimated for Vitamin-A and Vitamin-C that are subject to the price changes in the vegetable food group. Also, a price increase in the bread food group results in a decrease in the intake of all nutrients, except niacin. Moreover, calorie and protein intakes are negatively affected by price increases in all product groups without any exception. Finally, for carbohydrate intake, the effect of the increases in meat and oil prices are positive.
Keywords: Nutrient Elasticities, Demand System, Turkey, Household Survey Data, Food Demand.

ANALYSIS OF THE PREFERENCES OF HERDERS' IN INNER MONGOLIA FOR GRASSLAND PROTECTION COMPENSATION AND REWARD POLICIES USING A CHOICE EXPERIMENT: A CASE STUDY OF ORDOS

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Abstract

The purpose of this study was to determine a method by which to strengthen the incentives of the compensation and rewards policies for grassland protection. This study was aimed at the accurate identification of herders' preferences for the incentive attributes of these policies, and also to reveal the optimal policy combination. The primary data from 120 herder households were analyzed through choice modeling, using the case of Ordos, Inner Mongolia as the study object. Conditional Logit and Random Logit Models were used to estimate the herders' preferences. Then, on the basis of the results obtained using the preferred Random Logit Model, the implicit prices for each attribute, as well as the total willingness to accept by the herders, were estimated for a range of policy combinations. The empirical results of this study suggested that pension levels, repayment periods of loans and conditional eco-compensation payments all had positive impacts on the herders' preferences. Meanwhile, enforcement and penalties were found to negatively affect the herders' preferences. Furthermore, it was determined that the herders were willing to give up CNY 4.64 per mu of eco-compensation for the policy scenario which incorporated CNY 1200 of pension per month, five years for loan repayments, CNY 600 for penalties, and 50% enforcement.

Keywords: Grassland Policies, Strengthening Incentives, Choice Modeling, Herders' Preferences, Ordos.

INCORPORATING COLLECTIVE ENTREPRENEURSHIP AND CAPACITY DEVELOPMENT FOR EMERGING COOPERATIVE FARMING SYSTEMS: THE SOUTH AFRICAN REVIEW

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Abstract

The aims of this paper is to review and outline arguments underlying the failures of emerging agricultural cooperatives, investigating the foundation of the implemented strategies and their outcomes in South Africa. Finally and most importantly, to compare international literature on the success and significance of collective entrepreneurship worldwide and how the concept can be merged with capacity development to develop a new framework that will help improve the survival of emerging farming cooperatives in South Africa. In recent years, agricultural contribution towards the South African GDP has been on a steady increase. Despite the growth in contribution, the overall economic decline, political and policy uncertainties importation of cheaper agricultural produce amongst other reasons has resulted in a consistent increase in food prices. On the consumers' side, high unemployment rate, declining disposable income and low entrepreneurial participation has resulted in reduced food security countrywide. These challenges can be addressed through the inclusive growth and performance between large-scale commercial and small-scale emerging farming systems. It is in this view that emerging farming cannot be ignored and must be the focus of employment creation, economic development and income generation for rural populations.

In South Africa, emerging agricultural cooperatives were formed in order to resolve resource scarcity, human capacity, skills transfer and market access challenges. However, over the years these collective entities have declined in numbers due to various factors which are outlined in numerous literature not only limited to; lack of skills, resources, trust amongst members, and lack of market access amongst others. Countrywide, countless initiatives in terms of resource support, capacity development and cooperative research have been implemented to address the continuous collapses with little to no success.

The review findings and conclusion of this paper is twofold. First, the majority of Eastern European and North African countries have successfully applied the concept of collective entrepreneurship. The concert aims at collective workmanship (either vertical or horizontally) biased on willingness to participate with common objectives rather than forming a collective in order to address resource challenges amongst farmers who are not entrepreneurial by nature. In some countries they even transformed from primary to New Generation Cooperatives (NGCs) with complex levels of vertical and horizontal integration. Secondly the review revealed that, in South Africa, the concept of entrepreneurship let alone collective entrepreneurship in the emerging farming sector has been given little to no attention especially in emergingfarming cooperative systems. Therefore, the integrated capacity development and collective entrepreneurship framework can help improve the sustainability and performance of emerging cooperative farmers countrywide.

Keywords: Collective Entrepreneurship, Cooperatives, Emerging Farmers, South Africa.

ASSURING QUALITY IN THE BEEF PRODUCTION CHAIN

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Abstract

Since 2002, and every four to six years, the National Institute of Agricultural Research (INIA) and the National Meat Institute (INAC) have been conducting the "meat quality audit" for the beef chain. The aim of the audits, since its inception, is to provide the meat chain with a significant set of indicators and measures regarding the quality of the cattle, as well as the beef all its sub-products, going through all the links of the chain, from the farm to the consumer. The final objective was to determine and quantify the main factors that could be responsible for the potential loss of value along the chain due to inefficiencies occurring at some critical points of the chain. Each audit is carried out in three parts: Phase I consists in a survey conducted across the meat chain, to get insights on how agents operating at different levels perceive the productive process and the different attributesthat make the quality of the meat products in Uruguay. Phase II comprises on-site work at slaughter and packing operations, recording information potential efficiency and product quality problems that can be detected at this level, even when caused in the previous links of the meat chain.Phase III includes a final workshop with all the relevant agents and stakeholders for discussion of results of phases I and II, economic quantification of the problem either referred to direct and indirect losses as well as what is left on the table due to inefficiencies of the process. The objective of this article is comparing the evolution of the results of the three meat-quality audits performed for the Uruguayan beef chain (2003, 2008, and 2013). To make results comparable among audits, the figures were recalculated using the methodology applied in the last one (2013), assuming prices and the volume of the slaughter of that year. With regard to the agent's perceptions, the evidence showsimportant differences in the meaningor idea behind the concept of quality, even within the same link of the chain. No unanimous appreciation exists about the attributes that make up the quality of the product, being very difficult from a single chain link to have a complete overview of the entire industry. Agents working at a certain link usually know better the previous (supplier) and the subsequent (client) links. In addition, agents tend to weigh with greater emphasis those attributes more closely related with their particular link and therefore directly affecting their own business.Thus, the concept of quality applicable to the meat industry must be defined before any further consideration about its status. Nevertheless, food safety was clearly the main concern of the agents in the meat industry. It is a basic requirement so that it does not enter the discussion about quality characteristics. Overall, traits and attributes related to consumer satisfaction was the most relevant issue. On the other hand, the most relevant sources of potential losses in the Uruguayan beef chain were the presence of bruises in cattle and beef cuts, high pH and dark cuts,inadequate vaccination procedures, damage in hides, livercondemnations, and excess of yellow fat. Nevertheless, the continuous work effort resulting from joint strategies agreed on phase III after each audit allowed a reduction in the economic losses caused by problems of quality. In 2003,

the amount of money left on the table derived from quality problems was USD 23.8 per slaughtered cattle head. This loss reduced to USD 16.2 by 2008 and further to USD 15.5 per cattle head in 2013. Beef exports is a business of some 1.5 billion USD for Uruguay. With an average slaughter of 2 million heads per year, it means that actual quality losses in the beef export chain represent only 2% of total export value.
Keywords: Economic Loss, Product Quality, Food Chain, Beef Industry.