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# PROCEEDINGS BOOK



<sup>2<sup>nd</sup></sup>  
**INTERNATIONAL CONFERENCE ON  
FOOD and AGRICULTURAL ECONOMICS**  
**27-28th April 2018**  
**Alanya, TURKEY**

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**(Full Texts-Abstracts-Posters)**

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## THE PROSPECTS FOR AGRIBUSINESS MARKETING BETWEEN TURKEY AND AZERBAIJAN

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### Abstract

The future of food security and rural development significantly depends on the development of agribusiness sector. Agribusiness is the set of cooperation and integration of all firms that are involved in different processes on a movement of agricultural products from producers to consumers. These firms may belong to different countries. The study has shown that there are opportunities for further development of agribusiness marketing between Turkey and Azerbaijan

Political and economic relations between Azerbaijan and Turkey, as well as cooperation on scientific, educational, cultural and other fields, are rapidly developing. A strategic partnership exists between two states. Turkey is the first state that recognized the independence of Azerbaijan. 9th of November 1991 Turkey recognized the independence of Azerbaijan and on 14th of January, 1992 diplomatic relations were established between the two countries. Turkey is the first state that recognized the independence of Azerbaijan. (The Ministry of Foreign Affairs of the Republic Azerbaijan, 2018).

In 2017, Turkey shared 9.89% (1 366 337.09 thus. \$) in export and 14.50 % (1 273 709.08 thus. \$) in import of Azerbaijan. Total trade flow between two countries was 2 640 046.16 thus. \$ or 11.68 %. However, the indicator was 6.3 % in 2012, 5,7% in 2013, 5,8% in 2014, 12.1% in 2015 and 13.1 % in 2016 (The Statistical Committee of the Republic of Azerbaijan, 2018).

Fresh fruits, tea, cotton fiber, raw skin of sheep and lambs, cotton fabrics are main exported agricultural goods from Azerbaijan to Turkey. The main agricultural goods exported to Turkey are live poultry, poultry meat and its additional products, fresh and frozen fish, milk and cream, butter and other fats and oils derived from milk, cheese and curd, eggs, potatoes, fresh vegetables, fresh fruits, tea, wheat flour, vegetable oil, margarine and other nutrient mixtures, sausages of meat and analogical products and other goods.

Of course, the current level of agricultural trade between two countries is not considered sufficient. Beyond mutual trade partnership, Turkey is a key country for export of Azerbaijani agricultural products to international, including European market. At the same time, there is a high demand for Turkish agricultural goods in CIS countries and Azerbaijan is an efficient corridor for export.

Excellent level of bilateral relations between two countries, implementation of joint international projects, such as the Baku-Tbilisi-Kars railway establishes favorable conditions for further development of agribusiness marketing for mutual economic and political benefits.

Further development of agribusiness marketing between two countries requires identifying new market opportunities, matching supply and demand, detailed estimation of market potential, assessment of risks, market fragmentation, the establishment of joint ventures etc.

**Keywords:** Agribusiness, marketing, Turkey, Azerbaijan, agricultural goods.

## THE IMPACT OF EXCHANGE RATE VOLATILITY ON AGRICULTURAL EXPORTS IN TURKEY

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### Abstract

Agricultural trade flows are becoming increasingly important in the world and Turkey is not the exception. In recent years, the effects of exchange rate and its volatility on international trade has been an issue broadly discussed within scientific community and policy makers in Turkey. Furthermore, it is believed that understanding its impact may play an important role for development and design of appropriate policies. This paper empirically examines the impact of exchange rate volatility on the real agricultural exports in Turkey performing the autoregressive distributed lag (ARDL) bounds testing procedure proposed by Pesaran et al. (2001). The empirical analyses has been carried out for the period 2003:Q1 to 2016:Q4 using quarterly time series data. Generalized Autoregressive Conditional Heteroscedasticity (GARCH) (1,1) has been employed to obtain real effective exchange rate volatility series. The study results confirm that real agricultural exports are cointegrated with exchange rate volatility and real exchange rate. Our findings indicate that the exchange rate volatility has significant positive impact on real exports in the short-run and significant negative impact in the long-run, implying that higher exchange rate fluctuation tends to increase real agricultural exports in the short run and reduce real agricultural exports in the long-run in Turkey. Besides, the real exchange rate has significant negative effects on real agricultural exports both in the short-run and long-run. The paper's results imply that possible exchange rate instability in coming years is an important threat for Turkish export revenues in the agriculture sector. The study suggests that Central Bank of the Republic of Turkey should empower policy framework to ensure exchange rate stability in the country.

**Keywords:** Exchange rate, volatility, agricultural exports, ARDL bounds testing, GARCH (1,1)

## THE MEAT AND EGG QUALITY CAN BE ENHANCED BY NATURAL FEED ADDITIVES

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### **Absract**

Conscious people do not consider the food consumption as their main purposes. They give high priority to the healthy, high-quality and safe food consumption. An efficient consumer pressure group, which forces healthy food consumption, has been establishing with the aid of educated and healthy nutrition conscious people. Poultry meat and egg are among the most known healthy and safe food sources. The qualities of these food products can be affected by feeds and feed additives consumed by animals. In this context, medicinal and aromatic plants as well as lots of fruits rich in carotenoids can be used with the aim of improving characteristics of animal products. It has been determined that many of the products obtained from medicinal and aromatic plants (such as tomato paste, garlic extract, olive leaf extract, grape leaf, seed and extract, green tea extract, mint-thyme oil extract, propolis extract etc.) provide improvement in egg and meat quality. Yellow corn, linseed, corn gluten meal, marigold flour, alfalfa flour and red pepper, which are rich in carotenoid pigments, can also be used for this purpose. In this article, it has been discussed whether it is possible to enrich and enhance some quality parameters such as color, nutrient content of poultry meat and egg using natural feed additives. As a result, it is possible to produce tasty and healthy eggs which are poor in cholesterol and rich in omega 3 fatty acids and some trace minerals by using natural feed additives.

**Keywords:** Healthy food, natural feed additives, egg, meat.

## ET VE YUMURTA KALİTESİ DOĞAL YEM KATKI MADDELERİYLE İYİLEŞTİRİLEBİLİR

### **Özet**

Günümüzde gelişmiş ülkelerde özellikle eğitim ve gelir düzeyi yüksek insanlar gıda tüketimini ana amaçları arasında görmemekte, sağlıklı, kaliteli ve güvenli gıda tüketimini daha öncelikli olarak talep etmektedirler. Sağlıklı ve dengeli beslenme konusunda eğitim düzeyi yüksek, bilinçli toplum kesimlerinin de desteğiyle dünyada sağlıklı gıda tüketiminde gücü giderek artan bir tüketici baskı grubu oluşmaktadır. Güvenli gıda talebinde insan beslenmesinde önemli yer işgal eden beyaz et ve yumurta ön sıralarda gelmektedir. Ürünlerin kalitesi hayvanların tükettiği yem ve yem katkı maddelerinden etkilenebilmektedir. Bu bağlamda doğada bulunan bir çok tıbbi ve aromatik bitkinin yanı sıra karotenoid maddelerce zengin olan birçok meyve ve bunların kabuğu da ürün vasfını iyileştirmek amacıyla kullanılabilir. Domates posası, sarımsak ekstraktı, zeytin yaprağı ekstraktı, üzüm posası, çekirdeği ve ekstraktı, yeşil çay ekstraktı, nane-kekik yağı ekstraktı, propolis ekstraktı vb. tıbbi ve aromatik bitkilerden elde edilen birçok ürünün yumurta ve beyaz etin vasıflarında iyileşme sağladığı belirlenmiştir. Karotenoid pigmentlerince zengin sarı mısır, keten tohumu, mısır gluten unu, kadife çiçeği unu, yonca unu, kırmızıbiber de bu amaçla kullanılabilir. Bu makalede doğal yem katkı maddeleri kullanılarak tavuk eti ve yumurtasının rengi ve besin madde içerikleri gibi kalite unsurlarının zenginleştirilmesi ve beğenisinin artırılması imkanları tartışılmıştır. Sonuç olarak doğal yem ve katkı maddeleriyle lezzetli, sağlıklı et ve düşük kolesterollü, koyu sarılı, omega 3 yağ asitleri, bazı iz minerallerce zengin yumurta üretilmesinin mümkün olabildiği önerilmiştir.

**Anahtar kelimeler:** Sağlıklı gıda, doğal katkı maddesi, yumurta, et.

## PERCEPTION OF WOMEN'S PARTICIPATION IN WORKING LIFE (CASE OF TOKAT )

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### Astract

The aim of the research is to measure the perceptions of men or women, working in the industrial zone of Tokat regarding the participation of women in working life. A total of 96 respondents, 69 female and 27 male, were selected by randomized single level possibility sampling method. Chi square analysis was used to determine the age, gender, educational status, and the effect of the place of residence on the opinions of the women on their working life. According to the results of the Chi square analysis responses to the proposals of "in some branches of the industrial sector such as weaving and food, female employees are more than male employees" and "the reason why women do not participate to the labor force is being house wives" differ a statistically significantly according young and middle-aged individuals ( $p<0.05$ ). There are statistically significant differences in responses to following proposals of "women should not work after being a mother", "women should not work after marriage", "if her husband does not give permission, woman should not work", "it is more difficult for women to build career than men", "participation of women in politics is lower than participation of men" according to gender ( $p<0.05$ ). When the responses of proposals "if her husband does not give permission, woman should not work", "it is more difficult for women to build career than men", "there are men in the administrative staff of the professions in which women work intensively" were examined, it was found that there was a statistically significant difference ( $p<0.05$ ) between university graduates and non-university graduates. There is a statistically significant difference ( $p<0.05$ ) in responses to following "women should not work after marriage", "as the education levels of women increase, the possibilities of participation in the work force increase correspondingly" proposals according to discrepancy in respondents' living rural or urban areas.

**Keywords:** Work life, women, age, gender, education.

## KADINLARIN ÇALIŞMA YAŞAMINA KATILIMINA İLİŞKİN ALGI DURUMU (TOKAT ÖRNEĞİ)

### Özet

Araştırmanın amacı, Tokat organize sanayi bölgesinde çalışan kadınların çalışma hayatına katılımına ilişkin o sanayi bölgesinde çalışan erkek veya kadınların algılarını ölçmektir. Araştırmada tek aşamalı tesadüfi olasılık örnekleme yöntemi ile belirlenen 69 kadın ve 27 erkek olmak üzere toplam 96 kişiyle anket yapılmıştır. Bireylerin kadının çalışma hayatına ilişkin görüşleri üzerinde yaş, cinsiyet, eğitim durumu ve yaşanan yerin etkisini belirlemek amacıyla khi kare analizi kullanılmıştır. Yapılan khi kare analizi sonuçlarına göre “sanayi sektöründe dokuma, gıda gibi bazı dallarda kadın çalışanları erkek çalışanlarına göre daha fazladır” ve “kadınların işgücüne katılmama nedeni ev kadını olmalarıdır” önermelerinde genç ve orta yaşlı bireyler arasında istatistiksel olarak anlamlı bir farkın olduğu ( $p<0.05$ ) belirlenmiştir. “kadınlar anne olduktan sonra çalışmamalıdır”, “kadınlar evlendikten sonra çalışmamalıdır”, “kocasını izin vermiyorsa kadın çalışmamalıdır”, “kadın çalışanların meslek hayatında yükselme olanakları erkeklere oranla daha zayıftır”, “kadınların siyasal katılımı erkeklere oranla düşüktür” önermelerinde ise, erkek ve kadınlar arasında istatistiksel olarak

anlamli bir farkın olduđu ( $p<0.05$ ) belirlenmiştir. “kocas izin vermiyorsa kadın çalışmamalıdır”, “kadın çalışanların meslek hayatında yükselme olanakları erkeklere oranla daha zayıftır”, “kadınların yoğun olduđu meslek gruplarının arasında yönetim kadrolarını erkekler oluşturmaktadır” önermelerine verilen cevaplar incelendiğinde, üniversite mezunu olanlar ve olmayanlar arasında istatistiksel olarak anlamli bir farkın olduđu ( $p<0.05$ ) saptanmıştır. “kadınlar evlendikten sonra çalışmamalıdır”, “kadınların eğitim düzeyleri arttıkça, işgücüne katılım olanakları artmaktadır” önermelerinde yaşamının çoğunu kırsal alanda geçiren bireyler ve yaşamının çoğunu kentte geçiren bireyler arasında istatistiksel olarak anlamli bir farkın olduđu ( $p<0.05$ ) tespit edilmiştir.

**Anahtar kelimeler:** Çalışma hayatı, kadın, yaş, cinsiyet, eğitim.



## THE POSSIBLE IMPACTS ON RURAL TOURISM OF GEOGRAPHICAL INDICATION PRODUCTS IN MUĞLA PROVINCE

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### Abstract

Geographical indication is seen as an important tool in terms of rural tourism in recent years. Geographical indication plays an important role in terms of creating value added local value to the economy. The number of geographical indication products in the world is observed to increase day by day. Geographical indication products have gained importance in Turkey in recent years.

Muğla province occupies an important position among the high potential provinces of rural tourism. Although the limited number of geographical indication products, products with geographical indication of Muğla province has an important potential in terms of the number of properties that can take in the future. In this study, Muğla which has the city of agriculture and tourism has possible effects of the geographical indication products by various ways in rural tourism will be investigated.

**Keywords:** Geographical indication, rural tourism, economy, agriculture, Muğla.

## MUĞLA İLİNDE COĞRAFİ İŞARETLİ ÜRÜNLERİN KIRSAL TURİZME OLASI ETKİLERİ

### Özet

Coğrafi işaret son yıllarda kırsal turizm açısından önemli bir araç olarak görülmektedir. Yerel değerlerin ekonomiye katma değer yaratması açısından da coğrafi işaretler önemli bir rol üstlenmektedir. Dünyada coğrafi işaretli ürünlerin sayısında her geçen gün bir artış görülmektedir. Türkiye’de ise coğrafi işaretli ürünler son yıllarda önem kazanmış durumdadır.

Muğla ili kırsal turizm potansiyeli yüksek iller arasında önemli bir konumdadır. Mevcut coğrafi işaretli ürün sayısı sınırlı olmasına karşın, Muğla ili gelecekte coğrafi işaret alabilecek özellikteki ürün sayısı açısından ise önemli bir potansiyele sahiptir. Bu çalışmada, Muğla ilinin tarım ve turizm kenti özelliği göz önünde bulundurularak kırsal turizmde coğrafi işaretli ürünlerin olası etkileri çeşitli açılardan değerlendirilecektir.

**Anahtar kelimeler:** Coğrafi işaret, kırsal turizm, ekonomi, tarım, Muğla.

## **IMPACT OF MICRO-FINANCING ON HOUSEHOLD FOOD SECURITY OF FEMALE ENTREPRENEURS**

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### **Abstract**

Women are acknowledged as an imperative part of economies worldwide as they have proved their significant role repeatedly. The same is the case in Pakistan. This significant role is well supported by micro-financing facilities. This study aimed to assess the role of micro-financing in improving household food security of female entrepreneurs. Multistage sampling technique was used to collect data from 200 female entrepreneurs (100 loanees and 100 non-loanees). Dietary intake assessment method was applied to measure household food security. Two variants of regression model were applied to assess the indirect impact of micro-finance on household food security of women entrepreneurs. It was found that 27.5% of the respondents were food insecure while the loanee entrepreneurs were slightly better off (26% food insecure) than non-loanees (28% food insecure). Furthermore, micro-financing had positive impact on women entrepreneurs' income which had a positive but meager impact on household food security.

**Keywords:** Food security, micro-finance, women entrepreneurs.

## CONSUMER FOOD WASTE IN LITHUANIA: CONCERNS AND CAUSES

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### Abstract

This study aimed to identify and analyse concerns and behaviour towards consumer food waste in Lithuania, to examine the extent and uncover the main causes of consumer food waste in Lithuanian households. To reach this aim, in 2016, the web survey in a sample size of 559 respondents older than 18 years was conducted. The reason for choosing this sample was twofold, firstly, these respondents were responsible for decisions they made as regards food purchases, and, secondly, they maintained themselves. The analysis of collected data was performed using the methods of mathematical statistics. The results revealed that the majority of Lithuanians recognized the problem of food waste and its linkages to economic, environmental and social problems. The main reasons of consumer food waste accrued due to lack of planning and management of purchase, preparation of food and meals. Coupled with the relatively high food prices, consumers tended to buy too much food when it was discounted. Plate waste from partially eaten meals regarding larger portions was also recorded. The results of the analysis indicated that women, younger and less educated respondents were least likely to perceive the food waste issues. The food waste averaged just 5% in 39.2% of households. The largest share of food waste, i.e. more than half of purchased food was indicated by 2.3% of respondents. This behaviour of respondents might be resulted of the Lithuanian habits formed in planned economy and also in regards to low income of households as compared to other developed countries.

**Keywords:** Consumer food waste, households, Lithuania.

## THE NATURE OF INNOVATIONS IN THE FOOD MARKETS IN THE LIGHT OF THE CURRENT CONSUMER TRENDS

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### Abstract

The paper discusses the issue of innovations with regard to the food product markets in the context of currently observed consumer trends. At the beginning definitions of innovation starting from Schumpeter [1939], through Tirole [1988], and ending with the current approach presented by the OECD (Oslo Manual) are briefly examined with reference to the food sector in general. Next, the key consumer trends viewed as changes in style and taste, which have been going for a long time [Vejlgaard, 2008], reflecting the changing consumer preferences as aggregated dominant consumer wants and wishes, are highlighted. With reference to this background information, the main paper goal is to analyze recent product innovation trends shaping globalized food markets in the main world regions and several selected countries. The analysis is based on data regarding recent trends in food product innovations provided by XTC World Innovation Panorama (2015). The data describes segmentation of each food product launched in 2014 and 2013. Each new product is precisely depicted regarding innovative features and then positioned on the XTC trends tree. Applying index of percentage similarity this dataset was used firstly to compare intensity of occurrence of the 15 distinguished trends in such world regions as Asia, Europe, Latin America, Middle East & North Africa, and North America. Next, the dataset was transformed in order to show relative importance of the trends in the particular regions and 14 selected countries. Although intensity of occurrence of the food product innovation trends was quite similar, interesting differences were found in terms of relative importance of particular trends across the world regions and countries considered. This leads to general conclusion that the process of development and diffusion of food product innovations is globally driven, however, in spite of a strong impact of globalization forces there are world region and country specific factors influencing food producers responses in terms of product innovations. Still, features and attributes of the innovative food products offered are from the marketing standpoint in compliance with consumer expectations. Results of the carried out analysis allow not only to highlight regional and cross-country differences in occurrence and importance of the recently observed food product innovation trends, but also to contribute to better understanding of the nature of the contemporary monopolistic competition in global food markets, as being driven by consumer trends.

**Keywords:** Innovations, food products, consumer preferences.

## **ANALYSIS OF HOUSEHOLD FOOD DEMAND AND ITS IMPLICATIONS ON FOOD SECURITY IN KENYA: AN APPLICATION OF QUAIDS MODEL**

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### **Abstract**

This paper evaluates household food security situation in Kenya in terms of access to food, using cross sectional data from the Kenya Integrated Household Budget Surveys (KIHBS). By estimating price and income elasticities, which provides an indication of the sensitivity of households to market shocks and thus the degree of household's constraint to access food. The empirical approach involve estimation of demand system analysis the QUAIDS model. Existing research focuses on disaggregate food items and other developing countries, but none has specifically used the QUAIDS model for the aggregated food groups to analyse food consumption patterns nationally for the Kenyan context. The empirical results show positive expenditure elasticities while all compensated and uncompensated price elasticities show negative results. While their magnitudes vary; expenditure elasticities for meat and fish, and essential condiments are elastic (sensitive to changes) and are considered as luxuries as their elasticities are greater than one. Whereas cereal and bread, dairy products, fruit and vegetables and other condiments, have both inelastic price and expenditure elasticities; they are considered to be normal goods with values less than one. With respect to low income households, rural households and those highly dependent on the consumption of own produced food ("auto-consumption"), a reverse relationship is exhibited where meat and fish expenditure are inelastic hence perceived as normal foods, which is somewhat unexpected. However, in Kenya this finding may be attributed to the fact that a majority of the households in the survey depend on their own domesticated animals for meat and fish consumption. Hence they are not largely involved in the formal market services and prices. Further analysis shows that household size, regional differences, the ratio of food expenditure to total income and the ratio of auto-consumption are statistically significant, and hence have a great impact on food consumption expenditure. The results are broadly consistent with microeconomic theory, however exceptions indicate an unusual pattern (less sensitivity to income changes) for the rural and low income households' meat and fish consumption. Interestingly, the low income households in our sample show that the food income elasticity for meat and fish to be less than one. These results should inform the design of policies aimed at improving the nutritional status of the poor, children and other vulnerable individuals.

**Keywords:** Food security, food demand, QUAIDS, elasticity, Kenya.

## DRIVERS AND PATHWAYS OF SHIFTING FROM FOSSIL-BASED TO A SUSTAINABLE BIO-BASED ECONOMY

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### Abstract

The main drivers of shifting from fossil-based to a sustainable bio-based economy are global, European and national.

Using content analysis of documents and research articles the main global drivers, such as depletion of natural resources, increasing population, increasing environmental pressures and climate change, were identified.

The content and case study analysis revealed that there are five European drivers of bio-based economy. Thirst driver is common EU bio-economy policy, strategy and action plan. Policy and strategy is based on the global challenges and goals of EU development. Action Plan is based on three pillars: the development of new technologies and processes, the strengthening of markets and competitiveness of the bio-economy sectors and the promotion of closer inter-sectoral cooperation among all stakeholders. Sustainable development of bio-economy in the Baltic Sea region is also impossible without coordination of actions between the countries of this region. Second driver is assurance of biomass availability and sustainability and efficient biomass value chain. The basis for efficient biomass value chain is using cascading principle, minimizing waste, using waste as biomass, replacement of one type of biomass by another, and searching for alternative forms of biomass. Third driver is the need to strengthen markets and competitiveness of the bio-economy sectors. Using public and green procurements, motivating business to market new bio-products, development of short supply chains and promoting exports for higher value-added bio-products are the complex means which have to be strategically oriented. Fourth driver is the necessity of close cooperation among all stakeholders – politicians, business people, scientists and the public. Strengthening policy interaction and participation of all stakeholders are necessary for the development of sustainable bio-economy. Fifth driver is the need of the development of new technologies and processes, especially industrial biotechnology. This development is impossible without close cooperation between the scientists and business, and first of all at the European level. Advances in bio-economy research and implementation of innovation would create conditions for Europe to improve the management of biological resources, open up new and more diverse markets of food and biotechnology products.

The statistical data analysis showed that since 2010 Lithuania has been among leaders of bioeconomy growth in the EU in all biomass production and fully bio-based manufacturing subsectors, also, has a good research and development potential in the field. Identified subsectors are closely interrelated, because several activities use a part of the same biomass, while bio-products of one subsector become biomass of another subsector.

The pathways of shifting towards bio-based economy could be quite different, and they depend on the focus of technology, sustainability requirements and participation of stakeholders. The bioeconomy will contribute to a more sustainable future if certain requirements will be met. An internationally agreed set of criteria, indicators for measuring progress towards sustainability will have a significant impact on the biomass potential that can be produced sustainably. The pathway should not be too reliant on technology: social sciences should be developed and different societal stakeholders should be involved.

**Keywords:** Bio-economy, strategy, drivers, pathways, biomass, cascading, food security, sustainability.

## COMPARATIVE ASSESSMENT OF PRODUCTIVITY AND EARNINGS OF DOMESTIC VERSUS FOREIGN GUEST WORKERS IN U.S. AGRICULTURE

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### **Abstract**

The U.S. (United States) agricultural sector has a long history of dependence on foreign workers. In recent years, a shrinking supply of both domestic and “newcomer” (and mostly undocumented) migrant workers, coupled with aggressive enforcement of U.S. immigration laws have pushed agricultural employers to recruit an increasing number of foreign agricultural guest workers through the H-2A visa program. The H-2A program allows employers to hire foreign workers to perform seasonal or temporary agricultural work when insufficient numbers of qualified U.S. workers are available at the place and time needed. As the H-2A program gains momentum among US growers, immigration policies that permit foreign nationals to work in the United States continue to be a topic of heated discussion. There remains the concern that the importing of foreign-workers may adversely affect the employment and wages of U.S. citizens who work in similar positions. On the other hand, many agricultural employers demand revised guest worker programs to simplify the hiring of foreign workers to ensure continuing supply of farm labor. Simultaneously, worker advocates argue that there must be stronger enforcement of recruitment, housing, and wage protections to ensure that foreign workers are not exploited.

Despite their growing numbers, H-2A foreign guest workers constitute a relatively unknown group of farm workers in the United States. This study aims to shed some light on the earnings and productivity differences between foreign guest workers and domestic workers in U.S. agriculture. The empirical application utilizes recent data on 307 Florida citrus harvesters collected by the author in 2016 growing season. Foreign guest and domestic workers are compared in terms of their demographic and occupational characteristics, providing much needed descriptive data for these legal groups of farm workers. Earnings equations for both H-2A guest workers and domestic workers are estimated to test whether there are productivity and earnings differentials among agricultural workers with different visa statuses.

Preliminary results suggest that guest workers exhibit significantly higher levels of productivity and earnings compared to domestic farm workers in Florida citrus industry. The H-2A program is a costly endeavor for growers; nevertheless, it appears the program will continue to be a viable strategy to reduce uncertainty in labor availability, as high costs of the program are counterbalanced with productivity gains from utilizing this group of legal migrant workers. Implications of the results for the ongoing immigration debate in the United States and the state of Florida will be discussed.

**Keywords:** Agricultural labor, foreign guest workers, earnings equation, productivity, Florida agriculture.



## THE ECODEVELOPMENT OF PROTECTED AREAS IN POLAND – CHALLENGES AND OPPORTUNITIES

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### **Abstract**

The area covered by protected areas in Poland amounts to 33,1%; the region with the highest percentage of areas covered by them is in the Swietokrzyskie Voivodeship – 62 %. These areas are usually landscape parks and protected landscape areas. The basic of development of protected areas should be based on the production of high quality food and food processing. This paper presents problem challenges and opportunities of ecodevelopment of protected areas in Poland. The work continue discusses theoretical issues of instruments and institutions with reference to polish protected areas. Following the topic, the role of inhabitants and institutions in ecodevelopment of protected areas has been analyzed. The problem of strategic management in the context of ecodevelopment has been raised in this paper. The research shows that challenges should undoubtedly include social problems among which the respondents especially point out unemployment particularly among young persons, problems with alcohol and lack of developmental perspectives as well as depopulation of these areas and aging society due to the fact that “young people left for England to find work there.” The next challenge for the discussed area will be finding financial resources and potential investors providing workplaces (who will not open shops like Biedronka or Lidl).

Developmental possibilities for protected areas in Poland will result from the necessity of stricter environmental protection, which will enforce more and more pro-ecological economic activity. Tourism, craft and ecological agriculture as well as product innovations in this field should develop increasingly. Special attention is paid to the participation of the public institutions and the authorities in ecodevelopment of protected areas.

**Keywords:** Inhabitants, local development, rural areas, protected areas, ecodevelopment, Poland.



## **KNOWLEDGE LEVELS OF THE CANDIDATE GRADUATES OF AGRICULTURAL ECONOMICS ON CLIMATE CHANGE AND ITS IMPACTS ON AGRICULTURE**

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### **Abstract**

This study aimed to determine the factors influencing the candidate graduates' knowledge levels on the knowledge levels about global climate change and its effects on agriculture. A face-to-face survey with 506 candidate graduates in the departments of agricultural economics from 16 universities in Turkey was used to collect the data. The knowledge of climate change and its impacts on agriculture were determined by the candidate graduates' assessments based on a five-point likert scale. The factors affecting the candidate graduates' knowledge levels were analyzed by using ordered probit model. The study reveals that the candidate graduate students' knowledge about climate change and its effects were found to be intermediate level. Probit model results show that gender, having knowledge of climate change from university and being student of technical departments had positive effects on the knowledge level of climate change and its effect on agriculture. To increase the graduates' knowledge on climate change and its effects, the departments should put more compulsory courses on climate change in their undergraduate programs and employ more expert academic staff on climate change in the departments.

**Keywords:** Knowledge, climate change, impacts, candidate graduates, agricultural economics, ordered probit, Turkey.

## **AN AGGREGATED APPROACH TO MEASURING AGRICULTURAL GROWTH: EVIDENCE FROM LIVESTOCK SECTOR IN TURKEY.**

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### **Abstract**

Productivity measures are used to assess agricultural growth performance with the aim of understanding how productivity growth can be improved. Partial and total productivity are the two types of measures used to evaluate the sources of growth but both measures have their own weaknesses and strengths. Traditional measures of factor productivity growth do not give us considerable information about the causes of that growth. Therefore, the aim of this study is to develop an aggregated approach to measuring agricultural growth that is inspired from the growth accounting framework. The source of production growth is decomposed by an identity in order to analyze the production, productivity, and structural changes and to accurately evaluate agricultural policies over time. The livestock sector in Turkey is selected as an attempt to break down and analyze the determinants of cattle meat production for the period 1961-2013. This decomposition reveals that the cattle stock, carcass yield, and share of slaughtered cattle are the important determinants of per capita meat production and all these decomposed variables are explained in detail. The annual growth rates of these individual components are calculated to analyze the effects of policies over these variables. Also by using a semi-log model, the data is separated into periods determined by the structural changes, for further policy analysis and comparison. It is concluded that concentrating only cattle meat production per capita as an indicator of the progress/success in designing policies for improvements on the livestock sector, does not mean a lot if importance do not attached to the short- and long-term effects on these decomposed variables.

**Keywords:** Growth, Decomposition, Livestock Policies, Turkey.

## DETECTION OF ADULTERATION AND IDENTIFICATION OF MEAT AND MILK SPECIES USING MOLECULAR GENETIC TECHNIQUES

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### Abstract

Animal meat and milk products are very important in human diet and the quality measurement depends on the ability to satisfy human requirements of proteins, fat, vitamins and minerals, which, of course, vary from animal to another. For the fast, specific and sensitive identification or determination of goat, dog, cat, buffalo, cattle, sheep, camel, donkey, horse and pigmeat and milk, species-specific PCR and PCR-RFLP techniques were developed. Where, DNA from small amount of muscles (0.05 gm) and very little of fresh milk (100 µl) was extracted to amplify the gene encoding species-specific repeat (SSR) region and the mitochondrial DNA segment (*cytochrome-b* gene). The results of PCR amplification were 855 bp in length in goat, 808 bp in dog, 672 bp in cat, 603 bp in both buffalo and cattle, 374 bp in sheep, 300 bp in camel, 221 bp in both donkey and horse, and ≤100 bp in pig. To differentiate between buffalo and cattle meat and milk, as well donkey and horse meat and milk, *cytochrome-b* gene in the four species was amplified (359 bp) and digested with restriction enzymes. By *TaqI* restriction enzyme, two different fragments (191 bp and 168 bp) were generated in buffalo, whereas no fragments were obtained in cattle. With *Alu I* restriction enzyme, three different patterns were generated in horse (189 bp, 96 bp and 74 bp), while in donkey no digestion was obtained. The proposed PCR and PCR-RFLP assays represent a rapid and sensitive method applicable to the detection and authentication of meat and milk species-specific.

**Keywords:** Identification, species-specific meat and milk, *cytochrome-b* gene, PCR, PCR-RFLP.

## AGED GARLIC EXTRACT IN BROILER DIET CAN IMPROVE SHELF LIFE OF THE MEAT BY LOWERING THIOBARBITURIC ACID AS WELL AS REDUCE CHOLESTEROL<sup>1</sup>

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### Abstract

The environment-friendly growth promoters as aroma plants and their active compounds including garlic for the sustainability of broiler production have become more and more important. This study was carried out to determine the effects of supplementation of garlic extract and different levels of aged garlic extract (AGE) into broiler diets on sensory quality, shelf life and Thiobarbituric acid (TBA) value of the meat. A totally of 540 one-day old broiler (Ross 308) were randomly assigned to six treatment groups with six replicates containing 15 birds. The dietary treatments consisted of the negative control (AGE0) and two positive control (E200=Vitamin E; 200 mg/kg and 10 ml/kg fresh garlic extracts “FGE10” respectively) and diets supplemented with 5, 10 and 15 ml kg<sup>-1</sup> AGE (AGE5, AGE10 and AGE15) respectively. Feed and water are offered to animals ad libitum. On day 42, blood sample was collected from the birds for the evaluation of hematological and serum biochemical parameters.

There were no significant differences in terms of edible inner organs (heart, liver and gizzard), pH values, color, organoleptic sensory tests and chemical composition of meats among the treatments. The birds given fresh garlic extract and AGE had lower blood cholesterol and TBA compared to the birds found in control group. It could be concluded that fresh garlic extract (10 mg/kg) and aged garlic extract supplementation (5, 10 and 15 ml/kg) decreased blood cholesterol and improved the shelf life of meat by lowering TBA of the meat without effecting performance in broilers.

**Keywords:** Broiler, aged garlic extract, blood parameters, meat quality, TBA.

## YILLANMIŞ SARIMSAK EKSTRAKTI KAN KOLESTEROLÜNÜ VE THIOBARBİTURİK ASİTİ DÜŞÜREREK PİLİÇ ETİNİN RAF ÖMRÜNÜ ARTIRABİLİR

### Özet

Sarımsak (*Allium sativum* L.) da dahil tıbbi ve aromatik bitkiler ve bunların aktif bileşikleri, çevre dostu büyüme destekleyicileri olarak piliç üretiminin sürdürülebilirliği için gittikçe daha yaşamsal öneme sahip hale gelmiştir. Sarımsak, antioksidatif, antimikrobiyal, immüno-modülatör ve sindirim sistemi geliştirici özellikleri nedeniyle bir tıbbi ajan olarak ilgi konusu olmaya devam etmektedir. Ete ve yumurtaya kokusu geçtiği için kümes hayvanları rasyonlarında oldukça sınırlı düzeyde kullanılmaktadır. Ezilerek veya doğranarak yaklaşık bir yıl süreyle bekletilen yillanmış sarımsak veya ekstraktında (YSE) koku sorunu asgariye indirgenmektedir. Bu çalışmada etlik piliç rasyonlarına farklı düzeylerde ilave edilen yillanmış sarımsak ekstraktının çiğ ve pişmiş et kalitesi üzerine etkilerinin belirlenmesi amaçlanmıştır. Kırk iki gün olarak sürdürülen araştırmada 540 adet günlük etlik civciv

<sup>1</sup>This Project was supported by Ondokuz Mayıs University (Project number: PYO.ZRT.1904.11.005) and summarized from MSc thesis of Emine SACILDI.

kullanılmıştır. Muamele grupları; negatif kontrol, 10 ml/kg taze sarımsak ekstraktı, 200 mg/kg vitamin E (pozitif kontrol grupları), 5, 10 ve 15 ml/kg YSE'nin standart etlik piliç yemlerine ilavesiyle beslenmişlerdir. Rasyonlar ve su hayvanlara serbest olarak sunulmuştur. Çalışmada, karkas ağırlığı, yenilebilir iç organ ağırlıkları, etin besin maddeleri kompozisyonu, but eti rengi ve pH değerleri ile duyusal lezzet test sonuçları taze sarımsak ekstraktı veya yıllanmış sarımsak ekstraktı ilavesinden etkilenmemiştir. Buna karşın, kan kolesterolü ile Thiobarbituric acid (TBA) düzeyi yıllanmış sarımsak ekstraktı kullanımına bağlı olarak düşmüştür. Mevcut araştırma, etlik piliç rasyonlarına taze sarımsak ekstraktı veya yıllanmış sarımsak ekstraktı ilavesinin etlik piliçlerin performansında herhangi bir olumsuzluk oluşturmaksızın, kan kolesterolü ve TBA'yı düşürerek etlerin raf ömrünü uzatabileceğini göstermiştir.

**Anahtar Kelimeler:** Etlik piliç, yıllanmış sarımsak ekstraktı, kan parametreleri, et kalitesi, TBA.

## ECONOMIC ANALYSIS OF PESTICIDE USE IN THE HARRAN PLAIN

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### Abstract

Agricultural fighting medicines (pesticides) are chemicals with a wide range of uses in agricultural struggle in order to increase agricultural production and improve quality. Harran Plain in terms of climate and soil properties is one of the most important plain in Turkey. Therefore, an unconscious agriculture pesticide application to pollute these lands should not be done and the work to be done in this regard is very important.

Pesticide use by farmers in the Harran plain which is one of the most important plain of Sanliurfa examined in detail with data obtained from surveys conducted by 130 agricultural enterprises

It was determined that the share of the pesticide cost per decare of the farmers in total changed cost was 14.83% for cotton, 12.78% for wheat and 7.58% for corn.

While many of the farmers were buying pesticides, they found that they acted according to the recommendation of the franchisees and used excess pesticides and reached the result that the cost of spraying could be reduced by the training activities to be done in this area.

**Keywords:** Harran Plain, pesticide costs, economic analysis.

## HARRAN OVASINDA TARIMSAL İLAÇ KULLANIMININ EKONOMİK ANALİZİ

### Özet

Tarımsal mücadele ilaçları (pestisitler), tarımsal üretimi artırmak ve kaliteyi iyileştirmek amacıyla zirai mücadelede oldukça geniş kullanım alanına sahip kimyasallardır. Harran Ovası iklim ve toprak özellikleri yönünden Türkiye'deki en önemli ovalardan biridir. Bu yüzden bu toprakları kirletecek bilinçsiz bir ilaç uygulamasının yapılmaması gerekmektedir ve bu konuda yapılacak çalışmalar çok önemlidir.

130 işletme ile yüz yüze yapılan anket sonuçlarından elde edilen verilerle, Şanlıurfanın en önemli ovalarından biri olan Harran ovasındaki çiftçilerin tarımsal ilaç kullanımları detaylı olarak incelendi.

Yapılan değerlendirmede çiftçilerin dekar başına yaptıkları ilaçlama masraflarının toplam değişen masraflar içerisindeki payının pamuk için %14,83, buğday için %12,78 ve mısır için %7,58 olduğu belirlenmiştir.

Çiftçilerin çoğunun tarımsal ilaç satın alırken bayilerin tavsiyesine göre hareket ettikleri ve gereğinden fazla ilaç kullandıkları tespit edilmiş, bu konuda yapılacak olan eğitim faaliyetleriyle ilaçlama masrafının azalabileceği sonucuna ulaşılmıştır.

**Anahtar kelimeler:** Harran ovası, ilaçlama masrafları, ekonomik analiz.

## DETERMINATION OF PRODUCTION AND MARKETING POTENTIAL OF MEDICINAL AND AROMATIC PLANTS IN MUĞLA

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### Abstract

Production of medicinal and aromatic plants improved in recent years together with the increase of the amount of consumer demands. Medicinal and aromatic plants which have wide area of use also have important contribution on rural economy. In this way, medicinal and aromatic plants which are local resources in rural area provide an alternative income channel for the producers. On the other hand, although Turkey is one of the most important countries in the sense of medicinal and aromatic plants, exportation of medicinal and aromatic plants is not still at expected level. At this point, there is a need for various strategies for more effective marketing of the product. Mugla has an important place in medicinal and aromatic plants production of Turkey with its geographical and natural structure and ecological and biological diversity. In this sense, increase of production and marketing potential of available medicinal and aromatic plant of Mugla and enabling its sustainability is of great importance for country economics in macro basis and for Mugla in micro basis. In this study, first of all available medicinal and aromatic plants production and marketing structure of Mugla will be presented through years. Moreover, projects carried out from past until present for enabling sustainability of medicinal and aromatic plants production will be evaluated. In the study, in further stages, problems in production and marketing will be discussed and solutions will be suggested for these problems.

**Keywords:** Medicinal and aromatic plants, production, marketing, rural development, Mugla.

## MUĞLA İLİ TIBBİ VE AROMATİK BİTKİLER ÜRETİM VE PAZARLAMA POTANSİYELİNİN BELİRLENMESİ

### Özet

Son yıllarda dünyada tüketicilerin talep miktarında da yaşanan gözle görünür artışı ile tıbbi ve aromatik bitkiler üretimi hız kazanmıştır. Birçok kullanım alanı olan tıbbi ve aromatik bitkiler, aynı zamanda kırsal ekonomiye de önemli katkılar sağlamaktadır. Böylelikle kırsal alanda bir yerel kaynak olan tıbbi ve aromatik bitkiler üreticiye alternatif bir gelir kapısı olanağı sunmaktadır. Diğer taraftan, Türkiye tıbbi ve aromatik bitkiler yönünden dünyanın en önemli ülkelerinden birisi olmasına rağmen, tıbbi ve aromatik bitki ihracatı henüz istenilen düzeylerde bulunmamaktadır. Bu noktada üretilen ürünün daha etkin bir şekilde pazarlanmasına yönelik çeşitli stratejilere ihtiyaç bulunmaktadır. Muğla ili, coğrafi ve doğal yapısı ile ekolojik ve biyolojik çeşitliliği itibarıyla Türkiye'nin tıbbi ve aromatik bitkiler üretiminde önemli bir konumdadır. Bu bağlamda, Muğla ilinin mevcut tıbbi ve aromatik bitki üretim ve pazarlama potansiyelinin artırılması ve sürdürülebilirliğinin sağlanması makro bazda ülke ekonomisi ve mikro bazda da Muğla ili açısından önem taşımaktadır. Bu çalışmada, öncelikle Muğla ilinde yıllar itibarıyla mevcut tıbbi ve aromatik bitkiler üretim ve

pazarlama yapısı ortaya konacaktır. Ayrıca dünden bugüne tıbbi ve aromatik bitkiler üretiminin sürdürülebilirliğinin sağlanmasına yönelik yapılan projeler değerlendirilecektir. Çalışmada, daha sonraki aşamada, üretim ve pazarlamada yaşanan sorunlar ve bu sorunlara ilişkin çözüm önerileri getirilecektir.

**Anahtar kelimeler:** Tıbbi ve aromatik bitki, üretim, pazarlama, kırsal kalkınma, Muğla.



## PLANNING ACTIVE PACKAGING FOR ORGANIC PRODUCTION

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### Abstract

Foods for human nutrition are provided by agricultural production. Since the beginning of agriculture ten thousand years ago, agricultural production has continuously evolved, with many different methods being developed. Organic farming is a highly managed farming system that bases scientifically methods and add value to the farming ecosystem. Demanding organic food consumption in the world-wide is a result of increased hospitalization of the consumers, owing to nutrition. Therefore, consumers are more interested with organic foods to regulate their daily nutritional habits. Scavenging of free radicals in the human body can be provided by bio-active compounds from daily intake. Studies have shown that some of these compounds (e.g. antioxidants) are rich in organically produced foods rather than their conventionally produced counterparts. These compounds are also a good choice to be used in active packaging. Active food packaging is a new generation of food packaging. It includes packaging materials that have antimicrobial or scavenger properties and controlled released packaging (CRP). Bio-active compounds are encased in the packaging materials to achieve a stable shelf life in CRP. So as, this kind of packaging is missing direct addition of food additive materials in the foods. Specifically, synthetic additive materials are no more welcomed by consumers. Therefore, organic production stands for availability of bio-active compounds for CRP use. Another concern for synthetic materials is environmental problems. There is a general consensus for a sustainable environment in the world. For instance, biodegradable packaging materials, edible films and coatings are respectfully accepted by the consumers. In sum, whether most of the organic food prices are higher than conventional foods, the organic farming is a promising farming strategy for a sustainable agriculture, globally.

**Keywords:** Organic farming, active packaging, sustainability, food security, nutrition.

## THE EFFICIENT USE OF SOILLESS TECHNIQUES TO MAXIMIZE THE BENEFIT FOR FARMERS

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### Abstract

The world is facing many global challenges, such as the sustainable development and adapting to the climate change. The sustainable development is related directly to the sustainable of agriculture sector, in which takes into account the needs of rural communities and food safety for consumers as well as the impact of agricultural practices on local ecosystem services.

In Jordan, as a poor water country, a low quantity of rainfall, especially in southern Jordan, is a major cause of drought. Consequently, producers will face a bigger productivity drop. Governmental strategic changes are needed in order to sustain irrigated agriculture to achieve food security and conserve the associated natural environment.

The use of technical alternatives of using scarce resources and their impact on environment, social and economic should be assessed. This research focuses on the efficient use of soilless production systems in Jordan and to find out the best use of the soilless techniques for different crops in limited resources of land and water area and determine the impact on the living standard of the farmers. The study depended on a case study that collected data from the farmers. The linear programming model uses to analyze the data and find out the results.

The basic results show that the soilless system improves water efficiency, strengthens the agricultural productivity by increasing the quantity and the returns and achieve high economic profitability.

**Keywords:** Soilless techniques, hydroponic, linear programming, sustainable development.

## **FACTORS AFFECTING OVERWEIGHT AND OBESITY AMONG URBAN ADULTS: A CASE OF SAMSUN PROVINCE, TURKEY**

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### **Abstract**

The prevalence of overweight and obesity have increased at alarming rate in Turkey. This cross-sectional case study was to assess overweight and obesity among urban adults and to examine the factors such as socio-demographic, genetics, psychological, eating and activity habits affecting on overweight and obesity. The study was carried out among 384 adult individuals residing in the urban area of Samsun province of Turkey. The Body Mass Index (BMI) was used to determine overweight and obesity among the urban adolescents. The ordered probit model was used to estimate factors affecting overweight and obesity. The prevalence of overweight and obesity among the adults were observed as 32,29% and 20,57, respectively. The ordered probit model indicated that while the higher age, the higher numbers of sibling, being married, the number of obese people in the family, mother's BMI and, duration of breastfeeding had significant positive effects on both overweight and obesity among the urban adolescents, the factors of being employed and paying attention to salt and oil in the meals had significant negative effects on both overweight and obesity. The study concluded that there has been an urgent need for the development of health programs for preventing overweight and obesity among adolescents.

**Keywords:** Overweight, obesity, urban adults, ordered probit, Turkey.

## **A STUDY OF EFFECTIVENESS OF THE FARMER'S AGRO-METEOROLOGY INFORMATION ON WHEAT PRODUCTION IN IRAN**

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### **Abstract**

Meteorological information (MI) and weather forecasts for the production of agricultural products is vital. The aim of this study was to evaluate the effectiveness of agro-meteorology information from the perspective of farmers in Kohgiluyeh-va-Boyerahmad (KB) Province. In this study the relationship among the effectiveness of agro-meteorology at different stages of wheat cultivation and farmers socio-economic and demographic characteristics were examined. The method in this study is survey research and statistical population consisted of all wheat farmer in KB Province. Questionary validity using face validity, and reliability with Cronbach's alpha coefficient with quantity of 0.82 to 0.87 was approved. Using stratified random sampling, 335 farmers were determined. Statistical analysis of data using descriptive statistics (such as mean, percentage distribution, standard deviation and coefficient of dispersion) and inferential statistics (including correlation coefficient, T test and logistic regression) and was conducted using SPSS statistical software. Effectiveness basis, has been the decisions of farmers in wheat cultivation in 1393-94. The results showed that most farmers believe, MI to determine the order of priority in cases of wheat sowing, pest control, seeding levels and increase the quality of wheat are effective. Communication resources, with weak and medium intensity correlation, had positive impact on the effectiveness of MI. The results of logistic regression revealed that individual factors such as the confidence, farmer attitude, dryland farming and education on the effectiveness of MI are effective, respectively. Therefore, improving these factors, is expected to increase the effectiveness of MI.

**Keywords:** Agro-meteorology, attitude, effectiveness, logistic regression, wheat cultivation.

## **ANALYZING THE IMPACT OF CLIMATE CHANGE ON WHEAT PRODUCTIVITY IN KHYBER PAKHTUNKHWA PROVINCE, PAKISTAN**

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### **Abstract**

This research endeavor was designed to assess the Impact of Climate Change on Wheat productivity in Khyber Pakhtunkhwa (KP) Province, Pakistan. The major aim of the study was to explore wheat productivity nexus with selected climatic variables which include temperature, precipitation and humidity. Panel Data for the period of thirty years (1985-2015) regarding wheat crop's primary inputs and aforesaid climatic variables were gleaned from Agricultural Statistics of KP and Pakistan Metrological Department, Peshawar. Various econometric diagnostic tests were employed to confirm the validity of the data. The Chow test estimates corroborate that the data requires to be checked for the structural breaks. Therefore, the data set was split into two groups i.e. panel data for 1985-2000 and 2001-2015. Estimates of Hausman Test had suggested Fixed Effect Model to compute the data. The major findings divulge that temperature has significant but negative association with wheat production. This implies that by soaring one Celsius degree Centigrade ( $^{\circ}\text{C}$ ) temperature can plunge down the wheat productivity by 0.074 percent. Correspondingly, the impact of precipitation was also observed negative with wheat crop in the panel data since 1985 to 2000. This study concludes that in various span of time, an increase in temperature and precipitation has inverse correlation with wheat production while humidity is positively associated with wheat production. It is recommended that concerned policy makers may give due attention in providing high temperature resistant wheat varieties and disseminate the exalted adaptation strategies with respect to climate change to overhaul their existing crop management practices.

**Keywords:** Climate change, wheat productivity, panel data, fixed effect model, climatic variables & Khyber Pakhtunkhwa.

## MODELING EXIT FROM AGRICULTURE UNDER OCCUPATIONAL UNCERTAINTY AND SUNK COSTS

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### Abstract

The movement of labor away from the agricultural sector is an important element characterizing the development of an economy. The neoclassical model sees inter-sectoral movements of labor as an investment decision and argues that farm workers will move to non-farm jobs if their expected returns outside of agriculture exceed those achieved in the farm sector, net of migration costs (Barkley, 1990)<sup>1</sup>. This approach has two shortcomings: movement to non-farm sector a-) is assumed to be reversible (i.e., there are no sunk costs to switching sectors); b-) presents itself as a now or never proposition (i.e., there is no delaying of the decision). I argue that even in the presence of a positive wage differential between two sectors, people do not always move to the sector offering the higher earnings because leaving agriculture for non-farm jobs is not a reversible decision; it is typically associated with large sunk costs. Furthermore, workers may delay their decision to exit from farm jobs if there is too much uncertainty about the opportunities in the non-farm sector. As a result, the responses of migrants to wage differentials may be characterized by nonlinearities due to the existence of sunk costs and what is called an “option value of waiting” that results from the uncertainty involved in the decision.

The objective is modeling determinants of exit from agricultural work using a real options model of sectoral migration that is consistent with large sunk costs and uncertainty involved in changing occupations. I use a dynamic panel threshold model that is consistent with potentially large wage thresholds implied by large opportunity costs of leaving agricultural work (Seo and Shin, 2016)<sup>2</sup>. The empirical application is on the agricultural labor market in the United States. State-level panel time-series data on farm and non-farm employment and income between 1980 and 2016 are compiled from Bureau of Economic Analysis (BEA) – Regional Accounts, and Bureau of Labor Statistics (BLS) - Quarterly Census of Employment and Wages (QCEW).

Preliminary results favor the real options framework, which accounts for occupational uncertainty and sunk costs, over the conventional net present value approach. The response in exit from agricultural employment with respect to relative non-farm returns is regime-dependent and varies depending on the size of inter-sectoral wage gaps. The estimates are used to compute the threshold level of sectoral wage gaps that trigger exit from agriculture and the elasticities of out-farm migration with respect to wage differentials. Results have important implications for policy objectives intended to inhibit the flow of labor and other resources out of the farm sector through the use of price supports or direct payments.

**Keywords:** Agricultural labor; exit from agriculture; non-farm work; threshold panel GMM; real options.

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<sup>1</sup>Barkley, A. P. (1990). The Determinants of the Migration of Labor out of Agriculture in the United States, 1940-85. *American Journal of Agricultural Economics* 72(3): 567-573.

<sup>2</sup>Seo, M.H. & Shin, Y. (2016). Dynamic panels with threshold effect and endogeneity. *Journal of Econometrics* 195(2): 169-186.

## **EFFECT OF FARM SERVICE CENTRE (FSC) PROGRAM ON AGRICULTURAL PRODUCTION TECHNOLOGIES ADOPTION IN KHYBER PAKHTUNKHWA, PAKISTAN**

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### **Abstract**

The insignificant contribution of conventional agricultural extension program has diverted policy makers' and researchers' attention towards testing the effectiveness of new programs for improving crops production and farmers' welfare. The government of Khyber Pakhtunkhwa (KP) has started a new Farm Service Centre (FSC) program for providing a platform to farming community to resolve their common issues. This study investigated the effect of Farm Service Centre (FSC) program on farmers' adoption of high yielding certified wheat varieties (HYWV) in Khyber Pakhtunkhwa, Pakistan. A sample of 336 wheat growers from Northern, Central and Southern climatic zones of Khyber Pakhtunkhwa was selected using multi-stage stratified random sampling technique. The selected wheat growers were interviewed face to face for data collection using pretested questionnaire. A binary logistic regression model was used to quantify the effect for FSC program on the adoption of HYWV and identify and controls the effect of other important determinants. Results confirm that membership in FSC is the most important determinant, and its marginal effect value of 0.42 suggests that farmers having membership in FSC are 42 percent more probable to adopt HYWV as compared to others. Head's education level and farmland size are other important variables having positive significant effects on adoption of HYWV. Based on these findings the study recommended rural educational program for farmers' awareness of FSC program. The study also recommended the development of less costly formal education facility for rural community and effective extension system for quick dissemination of information on modern agricultural technologies.

**Keywords:** Farm service centre, wheat crop, logistic regression & modern agriculture technologies.



## **POLISH AND TURKISH SMES TOWARDS CSR AND SUSTAINABLE DEVELOPMENT CHALLENGES**

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### **Abstract**

In this period of global economic integration, corporate social responsibility emerges as an important and necessary concept in terms of sustainable economic development. Corporate social responsibility provides the firm with global competitive advantages, enabling the employment of qualified labor force. Although Milton Friedman argued that an enterprise would not have a social purpose other than profits, corporate social responsibility would have to be a social responsibility. It has been accepted by the companies as an effective way to cope with the social, economic, political and environmental problems starting with industrialization.

Business is more and more involved in achieving sustainable development goals. The importance of socially responsible practices in building a competitive advantage on the market and creating innovative solutions is increasing.

The aim of the article is to present the results of research on the issue of corporate social responsibility in the field of entrepreneurship of small and medium enterprises in Poland and Turkey. The detailed objectives of the conducted research are:

- the level of knowledge of entrepreneurs from the SME sector on CSR,
- recognition of the approach (differences and similarities) to the implementation of CSR solutions in the surveyed enterprises.

The research covered enterprises of the SME sector in Poland in the Masovian Province and Turkey in the Antalya and Mersin regions.

Quantitative surveys were used within the quantitative methods, which were carried out by the authors of this study in January and February 2018.

The article is a contribution to further research on the relations of CSR strategies conditioned by the historical and cultural differences of both countries. In the SME sector, the strategy is still little known. Entrepreneurs are more and more often implementing CSR solutions specific to their strategies, thus benefiting from specific benefits. Factors such as: strengthening the brand's reputation, attracting and retaining talented employees, increasing efficiency, meeting society's expectations, protecting the natural environment, creating new business opportunities are highlighted. as: increased trust in the company on the market, energy saving, employment of better quality human capital, improvement of economic results

**Keywords:** Sustainable development, market, environment, employees, society.



## **THE DIMENSIONS OF VULNERABILITY TO RURAL FOOD INSECURITY: EMPIRICAL EVIDENCE FROM KWAZULU-NATAL (SOUTH AFRICA) AND IMPLICATIONS**

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### **Abstract**

Using a result household survey data from a rural area in South Africa, Umzimkhulu municipality, this study examines vulnerability to food insecurity (VFI) using the Vulnerability as Expected Poverty (VEP) model, Principal Components Analysis (PCA) and cluster analysis. The study identifies households vulnerable to food insecurity and profiles the socio-economic and demographic characteristics of the most vulnerable. The findings suggest that it is not mere access to resources but utilization (a function of positive psychological capital endowment) that matters most to address current food insecurity and vulnerability in the future. Social and human capital (especially the education level of breadwinners), gender and age-related deprivations and the resilience of households to shocks are the most important influencers. An increase in age is an asset until about 65 beyond which it starts to become a liability. Unlike many studies in the past which do not distinguish consumption and production credit, the results in this study show that easy consumption credit improves access to food in the short-term but depletes asset base in the long-term and exacerbates vulnerability to food insecurity. Credit and finance institutions operating in rural areas have to be better regulated so that they can focus on production not consumption credit. On equity grounds, decision-makers will have to target the vulnerable segment of the population, including those households that are currently food insecure but more likely to be secured (transient), food insecure and vulnerable, and currently food secure but vulnerable. The last group can easily remain food secure with marginal and less costly interventions.

**Keywords:** Vulnerability to food insecurity, consumption credit, dietary diversity, typology of vulnerability, KwaZulu-Natal.

**THE CONTRIBUTION OF AQUACULTURE TO POVERTY ALLEVIATION/FOOD  
SECURITY AMONG THE RURAL POOR IN THE FEDERAL CAPITAL  
TERRITORY (FCT) ABUJA, NIGERIA**

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**Abstract**

Nigeria has a huge potential for aquaculture development. The fisheries sector contributed 4.5 percent to Nigeria's agriculture Gross Domestic Product (GDP) in 2016 from a combination of capture and culture fisheries. The sector is vital to the national economy of Nigeria, providing employment for millions, and contributing almost 50 percent of the animal protein diet for the citizens.

The current domestic production of fish in Nigeria is 1.1 million metric tonnes with demand for fish consumption at 3.2 million metric tonnes per annum, creating a deficit of 2 million tonnes in supply of fish and fish products only being met by imports. The role of aquaculture in attaining household and national poverty alleviation, contribution to the conservation of natural resources and food security in Nigeria cannot be overstated. Aquaculture activities provides vital nutrition and a source of business that offers a profitable means of livelihood and promotes rural development and employment for both the local and urban dwellers alike.

To address the above challenges, this study determined among other things, the contribution and impact if any, aquaculture has on rural farmers and how this can further be improved or augmented if the farmers are empowered. The investigation seeks to elaborate on the measures put in place by the government to support farmers to increase their well-being, and income, and improve and intensify their protein dietary intake. Furthermore, the study will also help in determining how the natural resources and other inputs could be used effectively through sustainable aquaculture integration.

From the study, it came to light that aquaculture integration into other farming methods play a major role in the fight against food insecurity and reduce poverty through the production of more freshwater species of fish.

**Key words:** Aquaculture, fish farming, poverty alleviation, food security, economic empowerment.

## FINANCIAL INDEPENDENCE OF RURAL MUNICIPALITIES IN POLAND

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### Abstract

The main role of the local government's activities is to ensure convenient conditions for the functioning and development of the local community by satisfying their needs. The implementation of this goal requires ensuring a constant inflow of financial resources. Therefore, the financial independence is one of the most important issues of interest to both theoreticians and practitioners involved in the activity of local governments. Financial independence of local government units can be considered in legal, political, economic, organizational and financial terms. Autonomy of local government considered in financial terms is related to the possibility of free decision-making by self-government bodies about obtaining income and revenues, sizes and directions of expenditures and expenses, as well as development and implementation of municipal budget.

Financial independence is an important factor for social development and economic growth, especially in rural areas. Rural municipalities, mainly located peripherally to larger urban centers, are characterized by a lower income potential. It also means a lower level of independence of rural municipalities, which may be a barrier for multifunctional rural development.

This paper addresses aspects of the rural municipalities financial independence in Poland within the years 2007-2016. Information and data were taken from the literature, current legal acts and from the reports of the Ministry of Finance: The implementation of state budgets and The indicators to assess the financial situation of a local government unit in 2007-2016. The comparative analysis was based on selected statistical measures of financial independence, fundamental to its level:

- the share of own revenues of the local government in its total income.
- the share of expenditures of the local government in the total public sector expenditure,
- the self-financing indicators,
- the level of total liabilities including debt for EU projects per 1 inhabitant,
- the percentage share of total liabilities in total income.

The research shows that in the period covered by the assessment an increase in the income of Polish communes, including rural municipalities was observed. In rural municipalities the increase amounted to 180.4%. Hence, in 2016, rural communes had income of over PLN 44.4 billion, which accounted for over 43% of total Polish municipalities income. Although in the years 2009-2015 clearly began to increase the share of own revenue in the total income of rural municipalities but the process was halted in 2016, and this share has fallen below the value of this indicator in 2007. The increase in own income of rural communes was mainly due to the increase in income from participation in personal income tax, real estate tax and other income; it is highly probable that this is a consequence of a specific exodus of city inhabitants to surrounding municipalities.

Duality of the observed trends, ie. the decrease in financial independence and the increase in the share of supplementary income, reflect two positions emphasized in the literature. First of all municipalities should base their financial management on own income, implementing the principle of decentralization and financial independence. Secondly they used mainly non-returnable transfers due to the specificity of services and public goods that they provide to local communities, in accordance with the principle of subsidiarity.

Also in rural municipalities growth in debt as a result of growing expenditures earmarked for supporting EU funds and the related need to obtain loans was observed. However, the rural municipalities show extreme caution in implementing investments and incurring liabilities for this

purpose. The research shows that these communities, despite the relatively low self-financing rate, have a significantly higher operating surplus in total revenues.

**Key words:** Municipality, financial independence, rural municipality.

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## THE PSYCHOLOGICAL BENEFITS OF 'FOREST BATHING' IN A MIXED LOW-ALTITUDE MOUNTAIN FOREST IN THE EASTERN ALPS IN ITALY: AN ECOSYSTEM SERVICES APPROACH

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### Abstract

In the last decade, the Ecosystem Services (ES) approach has recognized the importance of natural resources for the purposes of human health and wellness. In the psychological research field, other studies have identified direct relationships between the practice of walking in the forest and reductions in an individual's level of anxiety. However, despite these advances, ecosystem services and psychological studies have often been conducted according to a strictly mono-disciplinary logic. The main objective of this interdisciplinary study is twofold: (1) to analyse the influence of a forest environment in conducting a short-duration meditation session from a psychological point of view; and (2) to evaluate the implications of this in relation to ES innovation and to Payment for Ecosystem Services (PES).

Twelve subjects (eight women and four men, with an average age of 36.67 and a range of +/- 13 years) gave their informed consent to participate in two meditation sessions carried out on Saturday 21<sup>st</sup> and Sunday 22<sup>nd</sup> October 2017, in a forest and an indoor environment, respectively. These informed subjects underwent a preliminary medical examination to ascertain a good general state of health, which was identified as being a requirement for admission to the experiment. Individual anxiety levels were determined using two parameters: "State" Anxiety (SA), related to an individual's state at the time of an event, and "Trait" Anxiety (TA), related to their personal characteristics. All the subjects compiled the State Trait Anxiety Inventory test, form Y (STAI-Y), for the measurement of their state anxiety and trait anxiety (minimum anxiety=20, to maximum anxiety=80) both before and after each of the two sessions, for a total of four tests performed for each subject participant. The outdoor activity lasted for 1:40', and consisted of a walk through the mixed (*Fraxinus Excelsior*, *TiliaPlatyphyllos*, and *CarpinusBetulus*) forest path (with a length of 630 metres) in the locality of the Kot Waterfalls (at an altitude of 168 metres AMSL) in the Municipality of San Leonardo (UD), Region of Friuli Venezia Giulia, Italy. Indoor activities took place in the hall of a building specifically equipped for meditation activities in the city of Udine.

From a psychological point of view: State Anxiety Levels (SAL) decreased on average, both as a result of forest (*F*) meditation ( $SAL_F=28.92$ ), and after indoor (*I*) meditation ( $SAL_I=31.08$ ), compared to the average level of Trait Anxiety Level ( $TAL=45.92$ ). Ten out of twelve subjects saw reductions in their state anxiety, both in the forest and the indoor environments. The  $SAL_I-SAL_F$  (forest bathing based incremental benefit) score was positive (+2.17; +6.97%). Moreover, the reduction in state anxiety was greater than the average for six of twelve subjects in the indoor environment, and eight of ten subjects in the forest environment.

From a psychological research point of view, future investigations could examine the effects obtained following a longer period of meditation activities, and with a larger sized sample group.

From the point of view of the ecosystem service innovation, an hour of meditation in the forest produce a greater added value than an hour of meditation in an internal environment. This study provides useful insights for the establishment of forest-based Payments for Ecosystem Services agricultural subsidies. Future researches could quantify the total economic value of those services, as well as income opportunities for forest owners, agribusinesses, and rural communities.

**Keywords:** Agribusiness, agricultural subsidies, anxiety, forest therapy, health ecosystem services.

## ASSESSMENT OF VALUE-ADDED TAX EFFECTIVENESS

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### Abstract

Assessment of value-added tax (VAT) effectiveness is not a new phenomenon in scientific research domain (De Oliveira, Costa, 2015; Hybka, 2009; Matthew, 2003; Schaffer, 2000). Nonetheless, it could be noted that assessment of effectiveness of this tax is usually treated from a narrow perspective, i.e. in terms of collection of the maximum tax revenue at the minimum administrative costs. The concept of effectiveness, however, covers a lot more tax components, and its assessment cannot be limited to one or two aspects only, meaning that only a comprehensive analysis may help identify the disadvantages and advantages of the tax (Mansor, 2005; Ufier, 2014 et al.). The object of this research is therefore combined assessment of VAT effectiveness. Research aim – to design the methodology for assessment of VAT effectiveness enabling comprehensive assessment of VAT effectiveness.

In the course of the research work, it has been found that there is no uniform comprehensive methodology for objective assessment and comparison of VAT effectiveness in individual countries. The most common are the most informative quantitative methods for assessment of VAT effectiveness related to analysis of the tax revenue structure, assessment of the general tax burden and VAT burden, analysis of changes in tax revenues generated by VAT and tax rates based on the Laffer Curve model. There is shortage of methods that would enable inclusion of qualitative indicators into assessment of VAT effectiveness.

Selection of quantitative and qualitative indicators defining VAT effectiveness and integration of the selected indicators under the multi-criteria SAW method underlies the methodology for assessment of VAT effectiveness designed during the research (Chen, 2015; Ufier, 2014). The methodology covers the criteria of tax revenue collection and tax administration complexity. The indicators which represent different components of the analysed phenomenon have been selected for the quantitative research, as they provide the required information and are not time-intensive in terms of processing (Emmanuel, 2013; Olatunji, 2009; Poddar, 2009; Vlassenko, 2011). Expert method has been applied to assessment of the qualitative indicators, experts' opinions are in line with each other.

The model designed on the basis of the multi-criteria method covers the VAT revenue collection and tax administration components in view of the findings by other researchers that these two factors have the major effect on effective tax functioning. The multi-criteria assessment of VAT effectiveness enables combining the indicators, which have been subject to quantitative and qualitative assessment, into a single quantitative estimate that is comparable to other estimates of effectiveness calculated under the same method (see Fig.).

Empirical research of three EU countries (Lithuania, the Czech Republic, and Latvia) has been conducted for verification of reliability and applicability of the methodology. The results generated has enabled the authors to identify the differences in VAT effectiveness in individual countries and the causes for lower or higher effectiveness.

**Keywords:** Value-added tax, value-added tax effectiveness, SAW metod.



## **ECONOMIC PERSPECTIVES FOR SEEDER SZ – 3, 6 COMBINED WITH DEEP PLACEMENT FERTILIZER TECHNOLOGY**

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### **Abstract**

Agriculture is one of the most important sectors of the food production in the world. This makes agriculture one of the largest and most significant industries. Agricultural productivity is the main factor not only for a country's balance of trade but also for the health and food security. In recent times, the agricultural sector has become more flexible and changeable in order to supply sufficient food for the continuously growing population of the world. Meanwhile, scientists and farmers in a number of developing countries are looking for new technologies and methods to increase crop yields and revenues, reduce the volume of fertilizer used and mitigate environmental impacts to the atmosphere and water. These matters play a key role in the sustainable development of modern agriculture. This study presents the results of research based on modernization of the seeder SZ – 3, 6 made by a Russian manufacturer and equipped with deep placement fertilizer technology. The seeder SZ – 3, 6 is designed by a Russian manufacturer for drill seeding of cereals (wheat, rye, barley, oats), legumes (peas, beans, soybeans, lentils, pea, chickpea) with simultaneous application of fertilizers. The basic version of the seeder applies fertilizers at depth about 4 – 8 cm, but after modernization, by an installation of additional equipment on the seeder, the placement depth of fertilizers will be extended up to 10 – 25 cm. The depth of fertilizer placement below 10 cm allows plants to grow throughout the growing season. Deep placement fertilizer technology is an innovative and a profitable practice, which serves not only reduction of waste and excessive use of fertilizer but also mitigates negative impacts induced by fertilizer application on the environment. It has been proven by experts that fertilizer application technology achieves average yield increase. The economic perspectives of modification of seeder SZ – 3, 6 is to achieve a cheaper model, which could be equivalent to more expensive competitors. More specifically, by using the modified seeder we are able to increase the average crop yield with better quality, and minimize use of fertilizers. The construction of the modified seeder and use of deep placement fertilizer technology in modern agriculture are described. The results indicated a theoretical scheme for the seeder equipped with deep placement fertilizer technology as well as describing the working principle of the seeder during the application of this technology.

**Keywords:** Agricultural economics, mechanization of agriculture, agricultural machinery, deep placement fertilizer technology, seeder.