

UDC 338.43:63

ISSN 0352-3462



ЕКОНОМИКА ПОЉОПРИВРЕДЕ ECONOMICS OF AGRICULTURE



Vol.LXIV, N°1 (1-404), 2017

BELGRADE

UDC 338.43:63

ISSN 0352-3462



ЕКОНОМИКА ПОЉОПРИВРЕДЕ ECONOMICS OF AGRICULTURE

64.

“Сагласно одлуци из члана 27. став 1. тачка 4), Закона о научноистраживачкој делатности („Службени гласник РС”, бр. 110/05, 50/06-испр. и 18/10), утврђена је категоризација домаћих научних часописа

Листа часописа за друштвене науке

5. Економика пољопривреде М24”

(Часопис међународног значаја)

<http://www.nauka.gov.rs> (28. Jun 2010)

*Београд, јануар-март 2017. године
Belgrade, January-March, 2017*

Часопис

◇ ЕКОНОМИКА ПОЉОПРИВРЕДЕ ◇

Journal

◇ ECONOMICS OF AGRICULTURE ◇

Основан 1954. године / Established 1954

ИЗДАВАЧИ / PUBLISHERS

Научно друштво аграрних економиста Балкана, Београд
The Balkan Scientific Association of Agrarian Economists, Belgrade

Институт за економику пољопривреде, Београд (Србија)
Institute of Agricultural Economics, Belgrade, (Serbia)

Академија економских наука, Букурешт (Румунија)
Academy of Economic Studies, Bucharest (Romania)

EDITOR-IN-CHIEF

Prof. Drago Cvijanovic, Ph.D., Univesity of Kragujevac,
Faculty of Hotel Management and Tourism, Vrnjci Spa, Serbia

Адреса уредништва / Editorial office

Београд, Волгина 15; тел/факс (+381)11/6972-848; E-mail: economicsofagriculture@ea.bg.ac.rs
Belgrade, Volgina 15; phone/fax (+381)11/6972-858; E-mail: epoljoprivrede@gmail.com

<http://ea.bg.ac.rs>

INTERNATIONAL EDITORIAL BOARD

- Prof. Radovan Pejanovic, Ph.D.*, Faculty of Agriculture, Novi Sad, Serbia,
Prof. Zorica Vasiljevic, Ph.D., Faculty of Agriculture, Belgrade, Serbia,
Prof. Vladimir I. Trukhachev, Ph.D., Stavropol State Agrarian University, Stavropol, Russian Federation,
Prof. Alan Randall, Ph.D., Faculty of Agriculture, Food and Natural Resources, University of Sydney, Sydney, Australia,
Prof. Vincent Dolle, Ph.D., Mediterranean Agronomic Institute Montpellier (IAMM-CIHEAM), Montpellier, France,
Prof. Andras Nabradi, Ph.D., University of Debrecen, Debrecen, Hungary,
Prof. Eirik Romstad, Ph.D., Norwegian University of Life Sciences, Aas, Norway,
Prof. Wim Heijman, Ph.D., Wageningen University, Wageningen, The Netherlands,
Prof. Nicolae Istudor, Ph.D., Academy of Economic Studies, Bucharest, Romania,
Prof. Andrzej Kowalski, Ph.D., Institute of Agricultural and Food Economics, Warsaw, Poland,
Prof. William H. Meyers, Ph.D., College of Agriculture, Food and Natural Resources, Columbia, Missouri, USA,
Prof. Thomas Glauben, Ph.D., Leibniz – IAMO Institute, Halle, Germany,
Tomas Doucha, Ph.D., Institute of Agricultural Economics and Information, Prague, Czech Republic,
Prof. Margaret Loseby, Ph.D., State University of Tuscia, Viterbo, Italy,
Prof. Aleksandar Ostojic, Ph.D., Faculty of Agriculture Banja Luka, Republika Srpska, Bosnia and Herzegovina,
Prof. Toma Dinu, Ph.D., University of Agricultural Sciences and Veterinary Medicine, Bucharest, Romania,
Prof. Natalia Nikolaevna Balashova, Ph.D., Faculty of Economy, Volgograd State Agricultural Academy, Volgograd, Russian Federation,
Prof. Masahiko Gemma, Ph.D., Waseda University, Tokyo, Japan.

EXECUTIVE EDITORS

- Prof. Dragic Zivkovic, Ph.D.*, Faculty of Agriculture, Belgrade, Serbia,
Prof. Branislav Vlahovic, Ph.D., Faculty of Agriculture, Novi Sad, Serbia,
Prof. Dorel Dusmanescu, Ph.D., Petroleum Gas University, Faculty of Economy, Ploiesti, Romania,

ASSOCIATE EDITORS

- Prof. Zoran Rajic, Ph.D.*, Faculty of Agriculture, Belgrade, Serbia,
Prof. Zoran Njegovan, Ph.D., Faculty of Agriculture, Novi Sad, Serbia,
Prof. Jonel Subic, Ph.D., Institute of Agricultural Economics, Belgrade, Serbia,
Jean Vasile Andrei, Ph.D., Petroleum Gas University, Faculty of Economy, Ploiesti, Romania,
Ferhat Cejvanovic, Ph.D., Government of Brcko District, Bosnia and Herzegovina.

INTERNATIONAL EDITORIAL REVIEW BOARD

- Prof. Koviljko Lovre, Ph.D.*, Faculty of Economy, Subotica, Serbia,
Prof. Snezana Djekic, Ph.D., Faculty of Economy, Nis, Serbia,
Prof. Veljko Radojevic, Ph.D., Azotara Pancevo, Serbia,
Prof. Pero Petrovic, Ph.D., Institute of International Politics and Economics, Belgrade, Serbia,
Prof. Vlade Zaric, Ph.D., Faculty of Agriculture, Belgrade, Serbia,
Prof. Nedeljko Tica, Ph.D., Faculty of Agriculture, Novi Sad, Serbia,
Prof. Vesna Rodic, Ph.D., Faculty of Agriculture, Novi Sad, Serbia,
Vesna Popovic, Ph.D., Institute of Agricultural Economics, Belgrade, Serbia,
Prof. Milan R. Milanovic, Megatrend University, Belgrade, Serbia,
Prof. Ivan Milojevic, Ph.D., Military Academy, University of Defence, Belgrade, Serbia,
Prof. Nikolai I Kuznetsov, Ph.D., Saratov State Agrarian University – N.I. Vavilov, Saratov, Russian Federation,
Prof. Kenneth Thomson, Ph.D., University of Aberdeen, Aberdeen, Scotland, UK,
Dan Marius Voicilas, Ph.D., Romanian Academy of Science, Institute of Agricultural Economics, Bucharest, Romania,
Prof. Claudiu Cicea, Ph.D., Academy of Economic Studies, Bucharest, Romania,
Prof. Adrian Turek Rahoveanu, Ph.D., University of Agricultural Sciences and Veterinary Medicine of Bucharest, Romania,
Marek Wigier, Ph.D., Institute of Agricultural and Food Economics, Warsaw, Poland,
Prof. Mile Pesevski, Ph.D., University “Ss Cyril and Methodius”, Faculty of Agricultural Sciences and Food, Institute of Agroecoeconomics, Skopje, Republic of Macedonia,
Prof. Blagica Sekovska, Ph.D., Faculty of Veterinary Medicine, Skopje, Republic of Macedonia,
Prof. Aleksandra Despotovic, Ph.D., Biotechnical Faculty, Podgorica, Montenegro,
Prof. Marko Ivankovic, Ph.D., Federal Agro-Mediterranean Institute, Mostar, Bosnia and Herzegovina,
Prof. Bahrija Umihanic, Ph.D., Faculty of Economy, Tuzla, Bosnia and Herzegovina,
Prof. Alexandru Stratan, Ph.D., Institute of Economy, Finance and Statistics, Chisinau, Moldova,
Prof. Mihael Toman, Ph.D., Biotechnical faculty, University of Ljubljana, Domzale, Slovenia,
Klaus Wagner, Ph.D., Federal Institute of Agricultural Economics, Vienna, Austria,
Prof. Andrea Segre, Ph.D., Faculty of Agriculture, Bologna, Italy,
Prof. Raluca Ion, Ph.D., Academy of Economic Studies, Bucharest, Romania,
Zbigniew Florianczyk, Ph.D., Institute of Agricultural and Food Economics, Warsaw, Poland,
Crina Turtoi, Ph.D., Romanian Academy of Science, Institute of Agricultural Economics, Bucharest, Romania,
Vasily Erokhin, Ph.D., Stavropol State Agrarian University, Stavropol, Russian Federation,
Prof. Ivo Grgic, Ph.D., Faculty of Economy, Zagreb, Croatia,
Prof. Stane Kavcic, Ph.D., University of Ljubljana, Biotechnical Faculty, Ljubljana, Slovenia,

Prof. Anatoli Saiganov Semenovich, Ph.D., Institute of System Research in the Agro-industrial Complex of National Academy of Sciences of Belarus, Minsk, Republic of Belarus,

Prof. Natalia Sergeevna Morozjuk, Ph.D., Odessa State Agrarian University, Odessa, Ukraine,

Goran Maksimovic, Ph.D., Faculty of Agriculture Lesak, Serbia,

Bahrija Kacar, Ph.D., Government Office for the Sustainable Development of Underdeveloped Areas of the Republic of Serbia, Novi Pazar, Serbia,

Prof. Kadrija Hodzic, Ph.D., Faculty of Economics, University of Tuzla, Tuzla, Bosnia and Herzegovina,

Rumen Popov, Ph.D., Institute of Agricultural Economics, Sofia, Bulgaria,

Prof. Carlos Saborio Viquez, Ph.D., University of Costa Rica, San Jose, Costa Rica,

Prof. Miguel Moreno Millan, Ph.D., University of Cordoba, Cordoba, Spain,

Prof. Ion Iarca, Ph.D., Petroleum and Gas University, Economic Sciences Faculty, Ploiesti, Romania,

Prof. Done Ioan, Ph.D., Petroleum and Gas University, Economic Sciences Faculty, Ploiesti, Romania,

Prof. Riza Avcioglu, Ph.D., Aegean University, Faculty of Agriculture, Izmir, Turkey,

Prof. Diran Akinleye, Ph.D., University of Lagos, Akoka, Nigeria,

Prof. Zorica Sredojevic, Ph.D., Faculty of Agriculture, Belgrade, Serbia,

Prof. Natalija Bogdanov, Ph.D., Faculty of Agriculture, Belgrade, Serbia,

Prof. Elena Stoian, Ph.D., University of Agricultural Sciences and Veterinary Medicine, Bucharest, Romania,

Prof. Victor Manole, Ph.D., Academy of Economic Studies, Bucharest, Romania,

Prof. Gabriel Popescu, Ph.D., Academy of Economic Studies, Bucharest, Romania,

Prof. Dan Boboc, Ph.D., Academy of Economic Studies, Bucharest, Romania,

Prof. Aurelia Felicia Stancioiu, Ph.D., Academy of Economic Sciences, Bucharest, Romania,

Prof. Constantinos Alexiou, Ph.D., Polytechnic School, Aristotle University, Thessaloniki, Greece,

Prof. Nicholas Apergis, Ph.D., University of Piraeus, Piraeus, Greece,

Prof. Zaklina Stojanovic, Ph.D., Faculty of Economics, Belgrade, Serbia,

Prof. Snezana Stetic, Ph.D., The College of Tourism, Belgrade, Serbia,

Prof. Dusko Jovanovic, Ph.D., Business Economics Academy, Cacak, Serbia,

Prof. Sait Engindeniz, Ph.D., Ege University, Faculty of Agriculture, Department of Agricultural Economics, Izmir, Turkey,

Prof. Tetyana Mostenska, Ph.D., National University of Food Technologies, Kyiv, Ukraine,

Corina Ene, Ph.D., Petroleum and Gas University, Economic Sciences Faculty, Ploiesti, Romania,

Anna Ivolga, Ph.D., Stavropol State Agrarian University, Stavropol, Russian Federation,

Prof. Andreja Borec, Ph.D., University of Maribor, Faculty of Agriculture and Life Sciences, Hoce, Slovenia,

Prof. Mihai Mieila, Ph.D., Faculty of Economic Sciences, Valahia University, Targoviste, Romania,

Prof. Donatella Privitera, Ph.D., Department of Educational Sciences, University of Catania, Catania, Italy,

Prof. Marco Platania, Ph.D., Department of Formational Sciences, University of Catania, Catania, Italy,

Adrian Stancu, Ph.D., Petroleum and Gas University, Economic Sciences Faculty, Ploiesti, Romania,

Prof. Natalya Bannikova Vladimirovna, Ph.D., Stavropol State Agrarian University, Russian Federation,

Prof. Darina Zaimova, Ph.D., Trakia University, Stara Zagora, Bulgaria,
Prof. Matteo Vittuari, Ph.D., Faculty of Agriculture, Bologna, Italy,
Prof. Zoran Grgic, Ph.D., Faculty of Agriculture, Zagreb, Croatia,
Vesna Milicic, Ph.D., University of Ljubljana, Biotechnical Faculty, Ljubljana, Slovenia,
Alexandr Trukhachev, Ph.D., Stavropol State Agrarian University, Russian Federation,
Prof. Dimitre Nikolov, Ph.D., Institute of Agricultural Economics, Sofia, Bulgaria,
Prof. Christina Yancheva, Ph.D., Agricultural University, Plovdiv, Bulgaria,
Dario Simicevic, Ph.D., College of Tourism, Belgrade, Serbia,
Prof. Vladislav Zekic, Ph.D., Faculty of Agriculture, Novi Sad, Serbia,
Aleksandar Rodic, Ph.D., Institute Mihailo Pupin, Belgrade, Serbia,
Prof. Sanjin Ivanovic, Ph.D., Faculty of Agriculture, Belgrade, Serbia,
Prof. Milan Pocuca, Ph.D., Business Academy, Faculty of Law, Novi Sad, Serbia,
Prof. Dragana Gnjatovic, Ph.D., Faculty of Hotel Management and Tourism, Vrnjci Spa, Serbia,
István Kapronczai, Ph.D., Research Institute of Agricultural Economics, Budapest, Hungary,
Branko Mihailovic, Ph.D., Institute of Agricultural Economics, Belgrade, Serbia,
Vesna Parausic, Ph.D., Institute of Agricultural Economics, Belgrade, Serbia,
Vlado Kovacevic, Ph.D., Ministry of Agriculture, Belgrade, Serbia,
Natasa Kljajic, Ph.D., Institute of Agricultural Economics, Belgrade, Serbia,
Vladimir Zakic, Ph.D., Faculty of Agriculture, Belgrade, Serbia,
Boris Kuzman, Ph.D., Institute of Agricultural Economics, Belgrade, Serbia,
Prof. Jovan Zubovic, Ph.D., Institute of Economic Sciences, Belgrade, Serbia,
Zoran Simonovic, Ph.D., Institute of Agricultural Economics, Belgrade, Serbia,
Prof. Zeljko Vojinovic, Ph.D., Independent university, Economic faculty, Banja Luka, Republika Srpska, Bosnia and Herzegovina,
Svetlana Roljevic, Ph.D., Institute of Agricultural Economics, Belgrade, Serbia.

CONTENT

1. Željko Anđelković, Aleksandra Dragin, Sanja Božić, Kristina Košić
**EMOTIONAL EXHAUSTION AND JOB SATISFACTION OF TOUR
GUIDES IN RURAL AREAS 11**
2. Sanja Đukić, Danica Glavaš-Trbić, Nikola Banjac
**MANAGEMENT PROBLEMS OF RURAL DEVELOPMENT
IN FRUŠKA GORA 27**
3. Ivana Ilić, Bojan Krstić, Sonja Jovanović
**ENVIRONMENTAL PERFORMANCES OF AGRICULTURE IN
THE EUROPEAN UNION COUNTRIES 41**
4. Nataša Kljajić, Jonel Subić, Zorica Sredojević
**PROFITABILITY OF RASPBERRY PRODUCTION
ON HOLDINGS IN THE TERRITORY OF ARILJE. 57**
5. Aleksandar Maksimović, Zoran Grgić, Ferhat Čejvanović
**MULTI-ATTRIBUTE ANALYSIS OF ORCHARD ACCORDING
TO THE INTEGRATED PRODUCTION CONCEPT 69**
6. Ozrislava Milinković, Branislav Jakić, Slobodan Vuksanović,
Dragana Macura, Milica Šelmić
**MULTI- CRITERIA DECISION BASED APPROACH
TO SELECTING THE TYPE OF INDUSTRIAL HALLS
USED IN FOOD INDUSTRY 81**
7. Gordana Nikić, Ljubiša Stamatović, Azra Sućeska
**EMOTIONAL COMPETENCIES AND PERSONALITY
TRAITS OF MANAGERS IN MODERN AGROBUSINESS. 97**
8. Vladimir Obradović, Nemanja Karapavlović
**FINANCIAL REPORTING OF COMPREHENSIVE INCOME
IN THE FOOD AND BEVERAGE SECTOR
IN THE REPUBLIC OF SERBIA 113**

9. Aleksandar Ostojić, Nebojša Savić, Željko Vaško
**CONSUMER ATTITUDES
ON BUYING FISH IN BANJA LUKA 129**

10. Radivoj Prodanović, Boris Kuzman, David Jovović, Lazar Ozegović
MARKET AND TRADE OF ORGANIC FRUITS IN SERBIA 141

11. Predrag Vukadinović, Aleksandar Damnjanović, Ljiljana Dimitrijević
**ANALYSIS OF THE SALES AND INCOMES BETWEEN
DIFFERENT CATEGORIES OF AGRICULTURAL PRODUCTS . . . 157**

12. Jugoslav Aničić, Svetlana Vukotić, Goran Maksimović
**THE POSSIBILITIES AND LIMITATIONS
OF ENTREPRENEURSHIP DEVELOPMENT
IN AGRICULTURE IN SERBIA 171**

13. Željko Bjelajac, Marijana Dukić – Mijatović, Joko Dragojlović
**FOOD SAFETY AS ONE OF THE MAIN SAFETY P
REOCCUPATIONS OF A MODERN MAN 191**

14. Milan Bradić, Ljiljana Kosar, Lukrecija Djeri, Svetlana Vukosav, Vuk Garača
**ECO-LABELLING OF ACCOMMODATION FACILITIES
AND ITS PERCEPTION BY RURAL TOURISTS:
CASE STUDY OF VOJVODINA 205**

15. Vaso Jegdić, Iva Škrbić, Srđan Milošević
**MODELS OF ENTREPRENURSHIP DEVELOPMENT
IN RURAL TOURISM DESTINATIONS IN VOJVODINA 221**

16. Duško Kuzović
**MUSEUM OF VERNACULAR ARCHITECTURE OF WESTERN SERBIA
- Representative curtilages of the area surrounding middle
course of the river Drina and Podgorina 239**

17. Branko Mihailović, Zoran Simonović, Nikola Ćurčić
**AGRICULTURAL RESOURCES AND DEVELOPMENT
PRIORITIES OF THE MUNICIPALITY OF STARA PAZOVA. 259**

18. Radmilo Nikolić, Aleksandra Fedajev, Vidoje Stefanović, Silvana Ilić
**THE AGRICULTURE SECTOR IN WESTERN BALKANS
– SOME CHARACTERISTICS OF DEVELOPMENT. 275**

19. Vladimir Njegomir, Rajko Tepavac, Nenad Ivanišević
**ALTERNATIVE SOURCES OF FINANCING
ENTREPRENEURIAL UNDERTAKINGS IN AGRICULTURE 295**

20. Daniela Nuševa, Kristina Mijić, Dejan Jakšić
**THE PERFORMANCES OF COFFEE PROCESSORS
AND COFFEE MARKET IN THE REPUBLIC OF SERBIA 307**
21. Svetlana Roljević Nikolić, Predrag Vuković, Biljana Grujić
**MEASURES TO SUPPORT THE DEVELOPMENT OF ORGANIC
FARMING IN THE EU AND SERBIA. 323**
22. Željko Vojinović, Vera Zelenović, Drago Cvijanović
**PROGRAM OF STATE SUPPORT
TO AGRICULTURAL CREDITING. 339**
23. Nikola Vuksanović, Dragan Tešanović, Bojana Kalenjuk,
Milijanko Portić, Marija Knežević
**SOCIO-DEMOGRAPHIC CHARACTERISTICS
AS DETERMINANTS OF DIFFERENCES
IN PERCEPTION OF LOCAL GASTRONOMY. 359**

EMOTIONAL EXHAUSTION AND JOB SATISFACTION OF TOUR GUIDES IN RURAL AREAS

Željko Anđelković¹, Aleksandra Dragin², Sanja Božić³, Kristina Košić⁴

Abstract

The purpose of this study was to determinate the job satisfaction and emotional exhaustion of tour guides in rural areas and to show how these two concepts are related to each other. A total of 102 tour guides, who lead tours or have experience in leading tours in rural areas took part in the questionnaire and the results were given and processed in SPSS version 17. Tour guides have a great importance in interpretation of rural areas as well as a significant role in presenting local customs and products in rural tourism. Exploring their satisfaction but also emotional exhaustion is of paramount importance for maintaining their excellence in interpretation of these areas. The results indicate that job satisfaction is still not on satisfying level, while emotional exhaustion is under acceptable limits. The results also showed that there is a negative connection between these two concepts. The obtained data should be beneficial not only to tour-operators but also to other tourism-related companies dealing with FDA (Front Desk Activities) and employees in rural tourism: the data about job satisfaction and emotional exhaustion of tour guides can be used in developing management and work motivation strategies. The profound insight in job satisfaction and emotional exhaustion is important in order to achieve business excellence of tour guides in rural areas.

Key words: *tour guides, rural areas, job satisfaction, emotional exhaustion, business excellence*

JEL: *Q13, Q15*

- 1 Željko Anđelković M.A., Ph.D. Student of Tourism, Department of Geography, Tourism and Hotel Management, Faculty of Science, Novi Sad, Dositeja Obradovića Square no. 3, 21000 Novi Sad, Phone: +381 60 55 95 306, E-mail: zeljkozelja@yahoo.co.uk
- 2 Aleksandra Dragin Ph.D., Associate Professor, Department of Geography, Tourism and Hotel Management, Faculty of Science, Novi Sad, Dositeja Obradovića Square no. 3, 21000 Novi Sad, Phone: + 381 63 8306114, E-mail: sadragin@gmail.com
- 3 Sanja Božić Ph.D., Assistant, Department of Geography, Tourism and Hotel Management, Faculty of Science, Novi Sad, Dositeja Obradovića Square no. 3, 21000 Novi Sad, Phone: + 381 63 622 115, E-mail: sanja.bozic.89@gmail.com
- 4 Kristina Košić Ph.D., Associate Professor, Department of Geography, Tourism and Hotel Management, Faculty of Science, Novi Sad, Dositeja Obradovića Square no. 3, 21000 Novi Sad, Phone: +381 63 569 116, E-mail: kristina.kosic@dgt.uns.ac.rs

Introduction

Services in tourism industry are intangible – “services are performances, rather than objects, they cannot be seen, felt, tasted, or touched in the same manner in which goods can be sensed” (Zeithaml et al., 1985). It is specific in a way it does not sell physical things - except for food, souvenirs... but rather some tourist products made at the moment of their consumption. Due to these intangible tourist services it is necessary to have skilful staff ready to respond to the potential customers’ needs and also to be ready to deal with sometimes very demanding tourists. Service occupations with a high level of face-to-face contact with customers are significantly different from other types of work, since they contain emotional demands (in the form of ‘emotional performance for profit’) beyond the scope of traditional conceptualizations of work (Sandiford, Seymour, 2007). “Tour guides are one of the key front-line players in the tourism industry” (Ap, Kevin, 2001) and specific in rural tourism because of their great importance in presenting the way of living in rural areas as well as customs of those people: customs should be one of the products in rural tourism. Further they say that “tour guides are the essential interface between the host destination and its visitors” (Ap, Kevin, 2001) and because of that it is necessary to have a good working environment as well as good conditions at work. It is also very important that tour guides understand very well the way of living in villages so they could present in good and interesting way. It can be noted that the style of leadership exercised by tour leaders is a form of service provision. “They have to take care of their guests from the beginning to the end of the tour while guiding them to scenic spots” (Wong, Lee, 2012).

The concept of emotional labour was introduced by Hochschild (1979, 1983) and defined it as managed heart in his book *The managed heart: The commercialization of human feelings* published by Berkley: University of California Press in 1983. According to Wong and Wang (Wong, Wang, 2009) emotional labour possesses the following characteristics (e.g. Hochschild, 1983; Morris, Feldman, 1996; Zapf, 2002): (a) emotional labour occurs in face-to-face or voice-to-voice interactions with customers; (b) emotions are displayed to influence other people’s emotions, attitudes, and behaviours; and (c) the display of emotions has follow certain rules. Numerous authors emphasize the significance of tour guide’s performances (Baarsky, 1992; Hill, 1986; Huang, et al., 2010, Huang, et al., 2015; Parasuraman, et al., 1988) and their service orientation on their emotional exhaustion (Pienaar, Willemse, 2008; Wong, Wang, 2009). The tour leader’s performance within the service encounter not only affects the company’s image, but also customer loyalty and word-of-mouth communication (Heung, 2008; Mossberg, 1995). “Good” is the enemy of “Excellent” (Collins, 2010) so the tour guides should give their maximum to achieve that excellence in order to have satisfied customers. He also said that most companies do not achieve excellence because they are good and pretty good and they satisfied with that (Collins, 2010); but in tourism “one of the definition of ‘success’ is satisfied tourists” (Song et al., 2012). It should be mentioned once again that the job satisfaction, employees’ relationships and their attitude towards the potential clients are so easily noticeable in the tourism flow, starting from the moment when a potential customer enters a travel agent’s and starts communication with the staff, up to the moment when a representative provides direct services at particular destination. Not all

days are the same and it is not possible to be kind to the highest degree but as Morris and Feldman (Morris, Feldman, 1996) claimed, it is necessary to invest a bit of effort or work which are necessary to express one's emotions. The intensity of that effort would not be as big as the one somebody can have when expressing negative feelings towards setting. Such case can be, for instance, too high expectations of the management – which requires such employee to be extra motivated; it is also necessary him / her to invest some extra energy or to try to change the job position within the company in order not to blacken its reputation. Hochschild (1979, 1983) claims that there is a kind of a rulebook of expectations related to the attitude the staff should display while providing different services. This can be applied onto the sphere of tourism – clients think that apart from e.g. being kind, polite, efficient, a person employed in this sector has to be ready to provide answers to all tourist's questions related to the particular destination; moreover he/she has to have answers for the questions that are not destination related and not so typical and thus he/she has to be sometimes even invisibly present. Based on Ashforth's belief (Ashforth, Humphrey, 1993) - Ekman (Ekman, 1973) names all of these norms the „display rules“ and they represent a codex that implies not only what emotions are adequate for a particular situation but also how to transmit and show them publicly. “Display rules refer to behaviour rather than internal states, it makes relatively easy for customers, managers, and peers to observe one's level of compliance with the rules“ (Ashforth, Humphrey, 1993).

The principal aim of this paper was to explore job satisfaction and emotional exhaustion of tour guides in rural areas, but also to explore the relationship between these two concepts. This important information should serve as a basis for suggesting the ways to decrease emotional exhaustion among employees and increase job satisfaction, which would certainly directly influence their business excellence in interpreting rural areas.

Research methodology

This paper will present the results of research on the 102 respondents who are or were engaged as tour guides in the rural areas. As not all tour guides lead tours to rural districts, the sample was not easy to collect. Before including a tour guide in the survey, they were asked if they lead tours to rural areas, or they had experience in interpretation of rural districts. The sample was collected with the assistance of tourist info centres and local and tourism organizations of Novi Sad, Belgrade and Nis.

The survey with tour guides was conducted in order to explore the two main concepts - the emotional occupational burnout (emotional exhaustion of tour guides), and the job satisfaction.

The world scientific literature of the last decade has had works in this area while in Serbia it is still mostly unexplored. The terms emotional satisfaction and emotional exhaustion are often being mixed up. They are the two completely opposed terms with different meanings. The way in which the third party perceives a job we do can, but not necessarily, in a way, change our attitudes towards our own job.

The basic hypothesis of this survey is:

With increase of job satisfaction of tour guides, the emotional exhaustion decreases.

Based on the main Hypothesis, the research also intended to explore in more detail relationship with these two concepts, by conducting correlation test between individual items of job satisfaction and emotional exhaustion.

The problem, subject and objectives of the research required the application of appropriate methods and techniques of research. The research used two basic methods: the analysis method and the questionnaire method.

Within the analysis method the following was used: a method of documents' content analysis, using the technique of direct quantitative (statistical) analysis of documents' content and a method of structural analysis using the technique of classical qualitative method of documents' content analysis. The statistical data analysis was done in SPSS program.

A form of testing in the survey technique was used in the research, in particular, a written survey with standardized written questionnaire.

Questionnaire design

The questionnaire consists of three parts. The first part includes socio-demographic characteristics of respondents (gender, age, education and monthly income). The second part consists of a questionnaire for measuring emotional exhaustion, adapted from the original questionnaire (Maslach Burnout Inventory), developed by Maslach and Jackson from 1986 (where emotional exhaustion of one of the three factors of burnout) while the third part consists of a questionnaire of job satisfaction of tour guide, adapted from Thareethip Laowirojanaku from 1999, (A Study of Key Factors Affecting the Degree of Job Satisfaction of Tour Guide in Bangkok, Thailand). In the second and third parts, respondents were asked to measure the level of their agreement or disagreement with the various statements. The answers were measured by 5-point Likert scale (1-I totally disagree, 2-I disagree, 3- I am not sure, 4 - I agree, 5 - I totally agree).

Procedure

The research was carried out during March, April and May 2016. A standard pen and paper questionnaire was distributed to tour guides after their return from their tours in various tourist destinations. One part of the sample (32 out of 102) was reached by sending a questionnaire by e-mail. As a final result, the total of 102 completed questionnaires was collected.

Review of the scientific literature

“The tour guiding profession has been the “Cinderella” of the tourism industry: attractive, useful, but often neglected” (Mak et al., 2011). A very common problem that occurs in providing services, at work that requires communication with people and in the relationship between an employer and an employee is the emotional exhaustion or excessive overwork. It can happen at the moment of selling (tourist) services or among the employees at the workplace. A burnout syndrome, according to Maslach, is a phenomenon began to appear

with some regularity in the 1970s in the United States, especially among people working in the human services (Maslach et al., 2001). In their work they define burnout as “an emotional exhaustion, depersonalization, and diminished personal accomplishment, found within human service professions” (Maslach et al., 2001). “A common symptom of emotional exhaustion is anxiety at the thought of going to work. Often this can be exacerbated as individuals become frustrated or angry with themselves as they realize they cannot give to clients and/or the company the same kind of enthusiasm as in the past” (Babakus et al., 1999). “Depersonalization is an attempt to put distance between oneself and service recipients by actively ignoring the qualities that make them unique and engaging people” (Maslach et al., 2001). The emotional exhaustion is a process that starts with physical and later on mental tiredness and which leads to declining working capability and finally to the diminished desire to work anything. Connected with them Wong claimed that performing emotional labor may lead to burnout, dissatisfaction with the job and finally a high turnover rate. A high turnover rate leads to higher recruitment and training cost. “The job rotation and a well-defined career path are thus helpful when the tour leaders suffer from emotional exhaustion and burnout” (Wong, Wang, 2009). The exhaustion component represents the basic individual stress dimension of burnout. It refers to feelings of being overextended and depleted of one’s emotional and physical resources. “The cynicism (or depersonalization) component represents the interpersonal context dimension of burnout. It refers to a negative, callous, or excessively detached response to various aspects of the job” (Maslach et al., 2001).

This negative attitude can turn into a harsh, insensitive or even maladjusted behavior or withdrawal from others. In the tourism business, where direct contact between all the participants is almost necessary, this is the moment when the job should be given up at least for a while. Emotionally exhausted people with the occupational burnout cannot be good representatives of a tourist product, destination or agent. A job of a tourist guide is directly related to the emotional output and there should not be neither a reduced willingness to do the job nor any lack of emotion. Although the job has to be done without coming into close relationships with the passengers, a certain amount of participation in their travelling life is required because while being displaced from their homes and comfortable armchairs the only security they see is in the tourist guides. Therefore, especially in the tourism field, every occupational burnout, every absence of emotion and just getting the job done are signs to stop doing that job!

Every company needs a good business climate and good organization. There are many definitions of the organization, and Argyris (Argyris, 1977) require, as a minimum, employees who have skills to produce a product or a service. He looks at the organization as an open system with internal energy processes and feedback mechanism for corrections. The central focus is related to the psychological energy expressed in human needs and behaviors. As can be seen in this modern theory of organization mutual communication between employees and their adaptation to new situations is a condition *sin qua non*, and the treatment of employees and their emotional stability are crucial in all theories of organization since any particular tourist company is a living organism!

According to Florida (Florida, 2002) creativity is “a crucial source of competitive advantage on the market”. This is especially applicable to tourism. Many agencies sell the same services, but some are more successful at it. One can ask him/herself “What is the secret of that success? The emotional output / efforts that their employees have? The package? The agency image?”

An occupational burnout syndrome is defined by considering individual factors and the factors related to different situations. Situational factors imply that the occupational burnout syndrome is caused by (Dedić, 2005):

- the characteristics of the work place (the quantitative requirements- too many tasks and overtime work, qualitative reasons- conflicts and a lack of coworkers’ support);
- the professional characteristics related to the work (daily tasks, pressure and conflicts) and those related to the clients (communication and getting in touch with them frequently);
- having a job that seems to be confronted with death;
- the balance between work and emotions (requirements to suppress or express one’s feelings, empathy);
- organisational characteristics (a type of job position).

Results and discussion

Socio-demographic characteristics of the respondents

The sample consists of the total of 102 respondents whose profession is tour guide. The results suggest that there were 44.1% of female respondents while 55.9% were male. Such figures are reasonable since this profession is dominated by men due to the fact that they are usually dislocated from home and have the stamina to go on several tours in a row and sometimes to stay there for a long time. It also has to do with tradition and patriarchal point of view that - a woman is the one who stays at home (to cook) and raise the children while a man makes a living and travels.

According to questionnaire most of the guides are 26 to 35 years old and such fact was something expected due to the fact that this job is considered to be a part-time job rather than steady one. There is a fluctuation in the travel industry even worldwide; in Serbia, a country going through the transition period for more than a decade, many of them are discouraged to leave their jobs and tend to have a steady one. As respondents get older their number declines - and from the social aspects it is reasonable since - many of them have families so it is not easy to stay away from home so often. Younger generation that come are more endurable and fresh - so the possibility to experience emotional exhaustion and burnout is significantly decreased. Young people find the job of a tour guide very interesting because they discover some new destinations by themselves and at the same time they have the opportunity to earn some money.

The number of respondents having high school and university education is the same. The number of respondents having MA/MSc or PhD education is negligible (only seven of them)

as well as the number of those having college degree (13.7%). Such data is not surprising since in Serbia there is an increase in the number of students who majored in tourism at universities, working as tour guides but at the same time there is a big portion of employees in the sector of tourism having high school degree. An important thing to mention is the fact that there was a discontinuation in education of young tourist professionals at universities in Serbia from the 1980s until the first decade of the 1990s (the department of tourism at Belgrade University was discontinued by the end of the 1980s while the other one was started at the University of Novi Sad in the first decade of the 1990s). It is also important to mention that the profession of the tour guide is not meant only for those who graduated at university with major in tourism – there are many exceptional tour guides who majored in history or fine arts.

The results also indicated that most of the respondents have an income range from €301 to €450 and this sum can be considered as decent one; however there are twenty three respondents (22.6%) with incomes ranging from €451 to 600€ and that can be considered to be a bit higher than the average one in Serbia. One can earn more money when going on longer tours and that are physically more requiring and that money serves as a sort of “compensation“ for the absence from home and family. Once again it is important to point out that so called invisible “part“ of the income which actually is another chance for a guide to re-visit a particular destination and see some of his/her friends and co-workers and that is why we it can be said that this social moment is of great importance. The detailed information about socio-demographic characteristics of respondents are shown in Table 1.

Table 1. Socio-demographic characteristics of the respondents

Gender		Education	
Male	55.9%	Secondary school	37.3%
		Higher school	13.7%
Female	44.1%	Faculty	42.1%
		Master/PhD	6.9%
Age		Monthly income	
17-25	26.5%	<150 eu	5.9%
26-35	51.0%	151-300eu	24.5%
36-45	17.6%	301-450eu	37.3%
		451-600eu	22.5%
46-55	4.9%	601-750eu	9.8%

Source: Data obtained from SPSS analysis

Job satisfaction of tour guides in rural areas

The analyses were conducted in order to explore a job satisfaction of tour guides included in the sample. The results show that the Mean Value for job satisfaction is 3.11 (Std.=.356), which tells us that tour guides generally are not so satisfied with their job, and that there is still a lot of room for improvement in this field. A further analysis of the items of job satisfaction (Table 2) gives us a better insight in the elements tour guides are satisfied with the most and those they are satisfied the least.

Table 2. Mean of the items of job satisfaction of tour guides

Items of Job satisfaction	Mean Value	Std. deviation
1. Your job does not relate to your knowledge and experience and makes you feel uncomfortable	4.03	1.141
2. You will be more successful to work in another job	3.62	1.231
3. Your current position is lower than your Qualification	3.44	1.561
4. You are satisfied to work with full of knowledge and capability	4.12	.946
5. Your colleague usually listen to your opinion	3.38	1.015
6. You are satisfied the quantity of your job	3.15	1.105
7. You will be taken care by the company whenever you get an accident	2.59	1.480
8. Supervisor manages workers unfairly	3.76	1.232
9. Supervisor never take for granted whenever you are well-done your job	3.18	1.141
10. Your company is well-known in tourism industry	4.06	.886
11. Tourist guide is honourable job	4.03	1.114
12. Atmosphere in your workplace is nice	4.00	1.044
13. You have freedom in work	4.12	.844
14. Your job is always appreciated from executive	3.65	.981
15. You feel inconvenient in cooperation	1.50	.826
16. Salary is enough	3.12	1.094
17. Lack of variety in your job is boring	1.91	1.190
18. You are often offered to participate in training courses	3.41	1.131
19. Supplies and equipment are not enough	2.18	1.314
20. You have got special right to go some vacation assigned places	3.26	1.524

Source: Data obtained from SPSS analysis

From Table 2 we can see that the major problems for dissatisfaction of tour guides are that they consider their job does not relate to knowledge and experience they have, they think they would be more successful in other job and that they think that their current position is lower than their qualifications. This is a reasonable finding since almost half of the respondent have

finished Faculty or Master or PhD and are highly educated people who consider they deserve better job positions. The research showed that this is the major cause of their dissatisfaction with the job. In the conditions of the high level of unemployment rate in Serbia, people very often accept job positions which do not correspond to their level and of education, and this causes high level of dissatisfaction with their job. Results also indicate that respondents are not so sure whether they would be taken care by the company whenever they get an accident and also think that supervisor manages workers unfairly. This implies that they don't have enough protection from the companies they work for. Also, they are not so satisfied with the salary they have, and from Table 1 we can see that 67.7% of them have average and below average salary, which they probably consider to be low in comparison with their level of education. On contrary, all other analyzed factor showed to be quite satisfactory, especially freedom, atmosphere at work and notion they work a honourable job.

Emotional exhaustion of tour guides in rural areas

The results of descriptive statistics indicate that mean value for emotional exhaustion of tour guides is 2.42 (Std.=728). At first glance, it can be seen that this is not alarming situation, but further analysis indicate that mean value of emotional exhaustion vary from 1.41 to 4.42, showing that there are tour guides who have a really high level of emotional exhaustion.

The analysis was also conducted to explore the main value of the single items within Emotional exhaustion. The results are presented in table 3.

Table 3. Mean of the answers for items of emotional exhaustion of tour guides

Items of emotional exhaustion	Mean	Std. deviation
1. I feel emotionally drained at work.	2.32	1.430
2. I feel used up at the end of the day.	3.76	1.075
3. I feel fatigued when I get up in the morning and have to face another day on the job.	2.15	1.019
4. Working with people is really a strain on me.	2.32	1.173
5. I feel burned out from my work.	2.38	1.181
6. I feel frustrated on my job.	1.53	1.022
7. I feel I am working too hard on my job.	3.09	1.443
8. Working with people directly puts too much stress on me.	1.97	1.141
9. I feel like I am at the end of my rope	2.29	1.219

Source: Work of authors.

From table 3 we can see that the items *I feel used up at the end of the day* and *I feel I am working too hard on my job* have higher values compared to all other items of emotional exhaustion (higher than 3), while other items are still not indicating alarming situation in terms of emotional exhaustion. This can be explained by long working hours of tour guides and the fact that most of them consider they are not enough paid for it.

Relationship of emotional exhaustion and job satisfaction

As it has been already pointed out emotional exhaustion is the core of the burnout syndrome (Maslach, 1982). It is exactly what happens in the service-oriented companies, where it is necessary have a direct contact very often and that is why such communication along with a wide range of other stressful activities lead to this burnout syndrome i.e. you feel tired or used up. “Burnout is a metaphor that is commonly used to describe a state of mental weariness“ (Schanfeli & Bakker, 2004, 294). Gaines and Jermier (Gaines & Jermier, 1983, 569) say that “emotional exhaustion is the dimension of burnout that seems most applicable to occupation other than human services“. Further they say that burnout has been almost exclusively associated with those who deal with clients and people working in tourism industry, or are directly connected with another people (clients). Even though the top managers of the tour operators are not exposed to the direct communication with clients they can suffer from this syndrome too since they often receive the clients’ complaints, letters where they express their dissatisfactions and requests so that they have to deal with all of them.

The basic hypothesis of this survey states: If you are satisfied with the job, the level of emotional exhaustion decreases.

Table 4. Correlation between job satisfaction and emotional exhaustion

		E m o t i o n a l exhaustion	J o b s a t i s f a c t i o n
Emotional exhaustion	Pearson Correlation	1	-.470**
	Sig. (2-tailed)		.005
	N	102	102
		E m o t i o n a l exhaustion	J o b s a t i s f a c t i o n
Job satisfaction	Pearson Correlation	-.470**	1
	Sig. (2-tailed)	.005	
	N	102	102
** . Correlation is significant at the 0.01 level (2-tailed).			

Source: Data obtained from SPSS analysis

As it can be seen from the table, that there is a negative correlation between job satisfaction and emotional exhaustion, indicating that when job satisfaction rises the level of emotional exhaustion declines. This indicates that the basic hypothesis of this survey can be accepted.

Such correlation between emotional exhaustion and job satisfaction can be applied to other type of industries but at the same time it can be said that it is most characteristic of tertiary one where tourism actually belongs since there is a frequent and direct communication with customers that is sometimes even necessary so that the good job can be adequately evaluated. After a tour finishes, there are questionnaires for tourists that they need to fill out; sometimes they talk about the tour or follow different forms and comments.

After this, correlations between emotional exhaustion and items of job satisfaction (total of 18 items) have been explored. The results indicated that there is a negative correlation

between emotional exhaustion and good atmosphere at work, but also that there is a negative correlation between emotional exhaustion and the item “I think I would be more successful doing the other job“. However, there are no significant correlations between other items of job satisfaction and emotional exhaustion.

Table 5. Significant correlation between emotional exhaustion and items of job satisfaction

		Emotional exhaustion	I think I would be more successful doing the other job	Good atmosphere at work
Emotional exhaustion	Pearson Correlation	1	.418*	-.372*
	Sig. (2-tailed)		.014	.030
	N	102	102	102
		Emotional exhaustion	I think I would be more successful doing the other job	Good atmosphere at work
I think i would be more successful doing the other job	Pearson Correlation	.418*	1	.071
	Sig. (2-tailed)	.014		.691
	N	102	102	102
Good atmosphere at work	Pearson Correlation	-.372*	.071	1
	Sig. (2-tailed)	.030	.691	
	N	102	102	102
*. Correlation is significant at the 0.05 level (2-tailed).				

Source: Data obtained from SPSS analysis

Table 5 indicates that the correlation exists, meaning if a tour guide works in a good atmosphere the level of his/her emotional exhaustion decreases. Such outcome seems to be reasonable since everybody wants a good and adequate atmosphere especially when it comes to people who work with other people. This is because it happens very often that some small signs of kindness along with non-verbal communication can significantly influence tourists' satisfaction. It is sometimes necessary to praise the employees and his/her efforts and that the clients are becoming more and more satisfied- such things can make him/her - become even better, loyal and trustworthy worker. Good atmosphere at work is very important because it can help the employees become more creative and do their best. Since tourism as a kind of industry that aims to provide satisfaction of its tourists and make better profits, such adequate atmosphere is essential because it serves as a basis for the sense of security and belonging of the team that tries to achieve it.

Moreover, if he/she considers that he/she would be more successful doing other job, the emotional exhaustion increases. This finding might be connected with the fact that respondents are not so satisfied with their salary but also with the fact they think they have knowledge and experience which does not correspond to this job. This can be supported with the fact that majority of respondents obtained university degree. Also, their salary is enough only to meet their basic needs and wishes. According to National department for statistics, the EP 2017 (64) 1 (11-26)

average salary in Serbia in March 2016 was 375 eu, and these results indicate that majority of tour guides earn from 301 to 450 euros. If we consider statistical data which tell us that if some of them support three – member family in Serbia it is necessary to earn about 550 eu, which is around 183 eu per person – this indicates that they have only 200 eu left to satisfy other specific needs such as culture, art, tourism etc. As majority of respondents are highly educated people who account for majority in public cultural events and travelling, it is the fact that not much money is left to satisfy these needs. The job of tour guides requires a high level of education, tolerance as well as “capability to play at the first line of the front“ (Ap & Kevin, 2001, 551) which means that they are more susceptible to emotional exhaustion. For instance, employees in other professions, such as, IT sector, do not have so much direct contacts with people and their average salaries are much higher, so it is reasonable that respondents consider that they would be more successful in other job with the same input of time and energy, which would lower their level of emotional exhaustion.

Conclusion

As a phenomenon of interpersonal relationships, tourism keeps evolving. Rural areas are suffering immense changes and because of that it is important to save their authenticity: tour guides might serve as bridges that could contribute in understanding that way of living and rural tourism is a tool to show tourist all these intangible and tangible heritage. There are few things that cannot be presented and shown in terms of tourism. Since tourism is a phenomenon that provides intangible services, it is necessary to examine it from different aspects and motivation and the way of providing services are definitely some of them. In this research, it has been proven that emotional exhaustion decreases when employees are satisfied with the job. The important finding is also that emotional exhaustion declines when there is a good atmosphere at work but increases when employees are think that they would be more successful in doing other job. “Tour guides are one of the key front-line players in the tourism industry” (Ap, Kevin, 2001) it is necessary to deal with their satisfaction at work since business excellence depends on them to a great extent. They form the brand of the travel agency as well as of the destination tourist’s visit. This paperwork has to do with the research about their satisfaction at work and to what extent and why they are emotionally exhausted. To achieve business excellence is definitely the goal any employee in hospitality sector attains to - especially in tourism where people spend both their free time and money. Business excellence is such a challenge for the employees not only in tourism sector (as well as in all sectors connected with human economy resources and services) that only those who achieve it can hope to make profit.

It is up to these whether the tourists would be satisfied and whether the company would make profit and maintain solvency. It is important to have in mind that tourism is an economic category but in the future it is necessary for all tourist transitions to contain prefix “sustainable“. There is no unique definition to describe what it means to be satisfied with you work though in the 1970s Locke said that it is: “a pleasurable or positive emotional state resulting from an appraisal of one’s job or job experiences” (Locke, 1976). It is only a satisfied and motivated guide who can generate satisfied customers and this is something

that must be worked on continuously. There must not be any occupational burnout. It is very important to have an adequate response to the early stage of this syndrome since it does not have only a psychophysical effect on an individual; moreover the economic drawback caused by a work-shy and dissatisfied employee is inevitable in any company and especially in tourism industry where they directly communicate with tourists.

Burnout syndrome and work satisfaction are inversely proportional so as the work satisfaction declines, burnout syndrome increases and vice versa.

Any good HR team has a fair treatment of their employees and thus tries to postpone burnout as long as it is possible or at its best, to eliminate it from the company. In tourism, fluctuation is very common- employees change their job positions, they attend different workshops so that it is really possible to move boundaries when it comes to this phenomena.

Literature

1. Ap, W. J., Kevin, K. F. W. (2001): *Case study on tour guiding: professionalism, issues and problems*, Tourism Management, Vol. 22, no. 5, pp. 551-563, Elsevier B.V., Amsterdam, The Netherlands.
2. Argyris, C. (1977): *Understanding Human Behavior in Organizations*, John Wiley and Sons, New York, USA.
3. Ashforth, B. E., Humphrey, R. H. (1993): *Emotional Labor in Service Roles: The influence of Identity*, Academy of Management Review, Vol. 18, no. 1, pp. 88-115, Academy Management, Briar Cliff Manor NY, USA.
4. Babakus, E., Cravens, D. W., Johnston, M., Moncrief, W. C. (1999): *The role of emotional exhaustion in sales force attitude and behavior relationship*, Journal of the Academy of Marketing Science, Vol. 27, no. 1, pp. 58-70, Springer US, New York, USA.
5. Barsky, J. D. (1992): *Customer satisfaction in the hotel industry: Meaning and measurement*, Journal of Hospitality and Tourism Research, Vol. 16, no. 1, pp. 51-73, SAGE Publications, New York, USA.
6. Collins, J. (2010): *Business excellence: Why Some Companies Succeed In Taking The Leap From "good" to "excellent" and Others Don't?*, Curtea Veche Publishing House., Bucharest, Romania (Original work published 2001).
7. Dedić, G. (2005): *Sindrom sagorevanja na radu*, Vojnosanitetski preglad, Vol. 11, pp. 851-855, Uprava za vojno zdravstvo MO Srbije, Beograd, Srbija.
8. Ekman, P. (1973): *Cross-culture studies in a facial expression*, In: P. Ekman, ed., pp. 169-222, Darwin and facial expression: A century of research in review. Academic Press, New York, USA.
9. Florida, R. (2002): *The rise of the Creative Class*, Basic Books, New York, USA.
10. Gaines, J., Jermier, J. M. (1983): *Emotional Exhaustion in a High Stress Organization*, Academy of Management Journal, Vol. 26, no. 4, pp. 567-586, Academy of Management, Briar Cliff Manor NY, USA.

11. Heung, V. C. S. (2008): *Effects of tour leader's service quality on agency's reputation and customers' word-of-mouth*, Journal of Vacation Marketing, Vol. 14, no. 4, pp. 305-315, SAGE Publications, New York, USA.
12. Hill, D. J. (1986): *Satisfaction and consumer services*, Advances in Consumer Research, Vol. 13, no. 1, pp. 311-315, Association for Consumer Research Labovitz School of Business & Economics University of Minnesota, Duluth MN, USA.
13. Hochschild, A. (1979): *Emotion work, feeling rules and social structure*, American Journal of Sociology, Vol. 85, pp. 551-575, The University of Chicago Press, Chicago, USA.
14. Hochschild, A. (1983): *The managed heart: Commercialization of human feeling*, University of California Press, Berkeley, USA.
15. Huang, S., Hsu, C. H. C., Chan, A. (2010): *Tour guide performance and Tourist Satisfaction: a Study of the Package Tours in Shanghai*. Journal of Hospitality & Tourism Research, Vol. 34, no. 1, pp. 3-33, SAGE Publications, New York, USA.
16. Huang, S., Weiler, B., Assaker, G. (2015): *Effects of Interpretive Guiding Outcomes on Tourist Satisfaction and Behavioral Intention*, Journal of Travel Research, Vol. 54, no. 3, pp. 14-358, SAGE Publications, New York, USA.
17. Laowirojanakul, T. (1999): *A Study of key factors affecting the degree of job satisfaction of tour guide in Bangkok, Thailand (thesis)*, Rochester Institute of Technology, New York, USA.
18. Locke, E. A. (1976): *The nature and causes of job satisfaction*, In M. D. Dunette, ed., Handbook of Industrial and Organizational Psychology, Rand McNally, Chicago, USA.
19. Mak, A. H. N., Wong, K. K. F., Chang, R. C. Y. (2011): *Critical issues affecting the service quality and professionalism of the tour guides in Hong Kong and Macau*, Tourism Management, Vol. 32, no. 6, pp. 1442-1452, Elsevier B.V., Amsterdam, The Netherlands.
20. Maslach, C. (1982): *The cost of caring*, Prentice – Hall, Englewood Cliffs, New Jersey, USA.
21. Maslach, C., Jackson, S. E. (1986): *Maslach Burnout Inventory*, (Second Edition), Consulting Psychologists Press, Paolo Alto CA, USA.
22. Maslach, C., Schaufeli, B. W., Leiter, M. P. (2001): *Job burnout*, Annual Review Psychology, Vol. 52, pp. 397-422, Annual Reviews Inc., Palo Alto CA, USA.
23. Morris, J.A., Feldman, D. C. (1996): *The Dimensions, Antecedents, and Consequences of Emotional Labor*, Academy of Management Review, Vol. 21, no. 4, pp. 986-1010, Academy of Management, Briar Cliff Manor NY, USA.
24. Mossberg, L. (1995): *Tour leaders and their importance in charter tours*, Tourism Management, Vol. 16, no. 6, pp. 437-445, Elsevier B.V., Amsterdam, The Netherlands.

25. Parasuraman, A., Zeithaml, V. A., Berry, L. L. (1998): *SERQUAL: A multiple-item scale for measuring consumer perception of service quality*, Journal of Retailing, Vol. 64, pp. 12-40, Elsevier B.V., Amsterdam, The Netherlands.
26. Pienaar, J., Willemsse, S. A. (2008): *Burnout, engagement, coping and general health of service employees in hospitality industry*, Tourism Management, no. Vol. 29, no. 6, pp. 1053-1063, Elsevier B.V., Amsterdam, The Netherlands.
27. Sandiford, P., Seymour, D. (2007): *The concept of occupational community revisited: Analytical and managerial implications in face-to-face service occupation*, Work, Employment and Society, Vol. 21, no. 2, pp. 209-226, SAGE Publications, New York, USA.
28. Schaufeli, W. B., Bakker, A. B. (2004): *Job demands, job resources, and their relationship with burnout and engagement: a multi-sample study*, Journal of Organizational Behavior, Vol. 25, no. 3, pp. 293-315, Wiley, New Jersey, USA.
29. Song, H., Veen, V. D. R., Li, G., Chen, J. L. (2012): *The Hong Kong Tourist Satisfaction Index*, Annals of Tourism Research, Vol. 39, no. 1, pp. 459-479, Elsevier B.V., Amsterdam, The Netherlands.
30. Wong, J. Y., Wang, C. H. (2009): *Emotional labor of the tour leaders: and exploratory study*, Tourism Management, Vol. 30, no. 2, pp. 249-259, Elsevier B.V., Amsterdam, The Netherlands.
31. Wong, J. Y., Lee, W. H. (2012): *Leadership through service: An exploratory study of leadership styles of tour leaders*, Tourism Management, Vol. 33, no. 5, pp. 1112-1121, Elsevier B.V., Amsterdam, The Netherlands.
32. Zapf, D. (2002): *Emotion work and psychological well-being; a review of the literature and some conceptual consideration*. Human Resource Management Review, Vol. 12, no. 2, pp. 237-268, Elsevier B.V., Amsterdam, The Netherlands.
33. Zeithaml, V. A., Parasuraman, A., Berry, L. L. (1985): *Problems and Strategies in Service Marketing*, Journal of Marketing, Vol. 49, no. 2, pp. 33-46, SAGE Publications, New York, USA.

EMOCIONALNA ISCRPLJENOST I ZADOVOLJSTVO POSLOM TURISTIČKIH VODIČA U RURALNIM PODRUČJIMA

Željko Anđelković⁵, Aleksandra Dragin⁶, Sanja Božić⁷, Kristina Košić⁸

Apstrakt

Cilj autora ove studije je utvrđivanje zadovoljstva poslom i emocionalne iscrpljenosti turističkih vodiča u ruralnim područjima, kao i da se istraži kako su ova dva koncepta međusobno povezana. Ukupno 102 turistička vodiča, koji vode ture ili imaju iskustvo u vođenju tura u ruralnim područjima učestvovalo je u istraživanju a rezultati su obrađeni u programu SPSS verzija 17. Turistički vodiči imaju veliki značaj u interpretaciji ruralnih područja, kao i značajnu ulogu u predstavljanju lokalnih običaja i proizvoda u ruralnom turizmu. Istraživanje njihovog zadovoljstva poslom, kao i emocionalne iscrpljenosti je od ključnog značaja za održavanje izvrsnosti u njihovoj interpretaciji ovih oblasti. Rezultati pokazuju da je zadovoljstvo posao još nije na zadovoljavajućem nivou, dok je emocionalna iscrpljenost još uvek u prihvatljivim granicama. Rezultati su takođe pokazali da postoji negativna veza između ova dva koncepta. Dobijeni podaci su od koristi ne samo za turoperatore već i druge kompanije u ruralnom turizmu: podaci o zadovoljstvu poslom i emocionalnoj iscrpljenosti turističkih vodiča mogu da se koriste u razvoju strategije njihove motivacije na poslu. Dublji uvid u zadovoljstvo poslom i emocionalnu iscrpljenosti je važno kako bi se održala poslovna izvrsnost turističkih vodiča u ruralnim područjima.

Ključne reči: turistički vodiči, ruralna područja, zadovoljstvo poslom, emocionalna iscrpljenost

5 Željko Anđelković M.A., Doktorant turizma, Departman za geografiju, turizam i hotelijerstvo, Prirodno matematički fakultet Novi Sad, Trg Dositeja Obradovića br. 3, 21000 Novi Sad, Telefon: +381 60 55 95 306, E-mail: zeljkozelja@yahoo.co.uk

6 Prof. dr Aleksandra Dragin, vanredni profesor, Departman za geografiju, turizam i hotelijerstvo, Prirodno matematički fakultet Novi Sad, Trg Dositeja Obradovića 3, 21000 Novi Sad, Telefon: +381 63 83 06 114, E-mail: sadragin@gmail.com

7 Dr Sanja Božić, asistent, Departman za geografiju, turizam i hotelijerstvo, Prirodno matematički fakultet Novi Sad, Trg Dositeja Obradovića 3, 21000 Novi Sad, Telefon: +381 63 622 115, E-mail: sanja.bozic.89@gmail.com

8 Prof. dr Kristina Košić, vanredni profesor, Departman za geografiju, turizam i hotelijerstvo, Prirodno matematički fakultet Novi Sad, Trg Dositeja Obradovića 3, 21000 Novi Sad, Telefon: +381 63 569 116, E-mail: kristina.kosic@dgt.uns.ac.rs

MANAGEMENT PROBLEMS OF RURAL DEVELOPMENT IN FRUŠKA GORA¹

Sanja Đukić², Danica Glavaš-Trbić³, Nikola Banjac⁴

Summary

This paper analyzes the determinants upon which the successful management of the rural development of Fruška gora's area is depended, bearing in mind the presence of national park. The specific characteristic of Fruška gora's area has a multiple influences on the choice of optimal model for rural development. For this purpose, the survey was conducted in 2014. in the area of Fruška gora on a sample of 117 interviewees from this area. Statistical methods are used in order to reach conclusions on the basis of data obtained from survey research. The research results show that in this region dominance of agriculture and tourism is present, with unsatisfactory rural infrastructure. Socioeconomic determinants are key disadvantages affecting the management of rural development of Fruška gora's area. The authors conclude that in the future the management model of rural development of Fruška gora's area should focus on the development of organic agriculture and rural tourism on a sustainable basis together with rural investments.

Key words: *management of rural development, protected areas, area of Fruška gora*

JEL: *O18, Q01*

Introduction

Fruška gora is one of two mountainous areas in the territory of Autonomous Province of Vojvodina (Republic of Serbia) and covers an area of approximately 139,430.01 ha. Within this area, the municipalities Petrovaradin, Sremski Karlovci and Beočin are the settlements

-
- 1 The article is the result of research within the project entitled "The right to the first chance", funded by the Provincial Secretariat for Science and Technological Development of the Autonomous Province of Vojvodina.
 - 2 Sanja Đukić Ph.D., University of Novi Sad, Faculty of Agriculture, Dositeja Obradovića Square no. 8, 21000 Novi Sad, Serbia, Phone: +381 66 421 845, E-mail: djukasanja@gmail.com.
 - 3 Danica Glavaš-Trbić M.Sc., Assistant, University of Novi Sad, Faculty of Agriculture, Dositeja Obradovića Square no. 8, 21000 Novi Sad, Serbia, Phone: +381 63 88 78 701; E-mail: danicagt@polj.uns.ac.rs.
 - 4 Nikola Banjac M.Sc., The Secretary General of the Assembly of AP Vojvodina, Vladike Platona street nn, Novi Sad, Serbia, E-mail: nbanjac@skupstinavojvodine.gov.rs.

that are part of Fruška gora with the whole territory. Certain parts of the municipalities Irig, Indija, Šid, Ruma, Bačka Palanka and the city of Sremska Mitrovica are also part of this area. The specificity of this area is the presence of the National Park “Fruška gora”, as a protected natural resource of the first category with a total area of 25.520 ha. Considering that the national park is in the middle of this area, the remaining part of the territory is a protection zone (buffer zone) with about 56,650 hectares of area. The protection zone is considered to be the territory which is located near protected areas where sustainable utilization of natural resources are allowed (Wells et al., 1992). Our legislation defines a protection zone as: “space outside the boundaries of the protected area, the ecologically significant area and/or ecological corridor which can be determined in establishing these areas, in order to prevent or mitigation of external influences or this is an area where it is applied in a selective protection in order to eliminate or reduce the negative impacts and pollution of the environment”. In the literature (Ebregt, de Greve, 2000) the authors highlight the many benefits of buffer zones and the most significant economic improvements are: employment, changes in productivity, introduction of new technologies, creation of income associated with transit movements within the entire protected area (trade, tourism, etc).

The settlements within the area of Fruška gora are mostly rural, except the two municipalities Petrovaradin and Sremski Karlovci that have the attributes of urban communities (Njegovan, Pejanović, 2009; Pejanović, Njegovan, 2011). Fruška gora as rural area is faced with a number of developmental problems, where infrastructural development is crucial to the survival of the population in this area (Njegovan et al., 2011; Đukić, 2014). The demographic characteristics of the area are marked by negative trends whereby the most obvious manifestations are depopulation and senilisation (Pejanović et al., 2012). Fruška goras` s region has significant potential for organic production (fruit growing, viticulture, growing vegetables, animal husbandry, beekeeping, fish farming, as well as the cultivation of melliferous and medicinal herbs (Pejanović et al., 2011). Economic revitalization of Fruška gora is based on improving key development potentials of sustainable agriculture and tourism (Đukić, Glavaš-Trbić, 2012; Pejanović et al., 2014).

Spatial plan for area of special purpose of Fruška gora stand out the following economic activities that are represented in this area: agriculture, forestry, tourism, catering industry, mining, trade, craft production, industry, transportation and public utilities. Developmental characteristics of existing activities in the Fruška gora are as follows (Official Gazette of the AP Vojvodina, 2004):

- there is a different level of development of certain economic areas in relation to available resources, the comparative advantages of the area and the real expressed needs;
- there is a concentration of the population, the capacity of industry, trade, service industries and hospitality in the following settlements: Beočin, Sremski Karlovci, Petrovaradin, Šid and Irig, as a result of the existing raw materials basis and favorable conditions for transport links with broader region;
- the use of natural and man-made comparative advantages is incompletely and unevenly, particularly in the field of agriculture (fruit growing, viticulture, animal husbandry), as

well as tourism and catering industry;

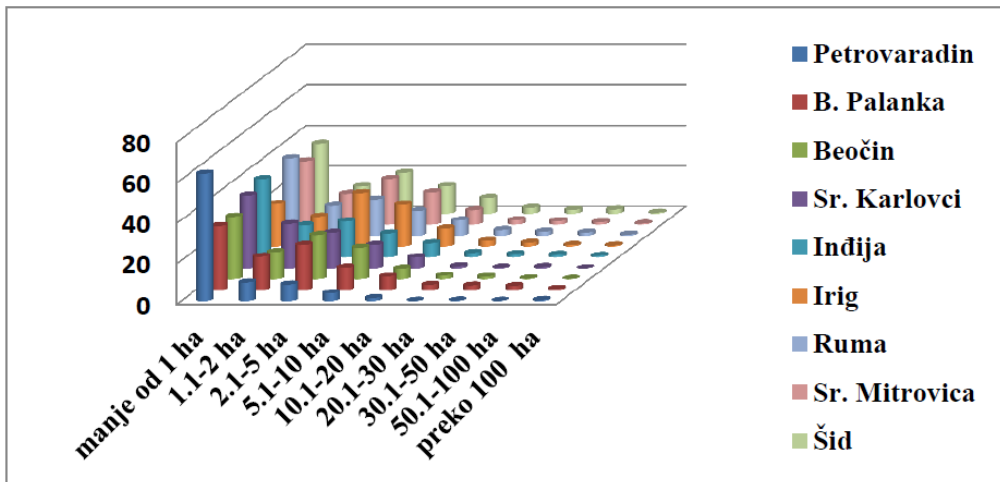
- excluding economic development on the line Sremski Karlovci-Petrovaradin-Beočin-Šid, basically it can be observed that the area has a picture of an under-developed and the monofunctional economy in stagnation;
- agriculture is the dominant economic activity.

In agriculture of Fruška gora there is a small ownership structure (graph 1) and in most settlements that are part of this area the holdings size up to 5 ha are dominant (Đukić, 2015).

This ownership structure could be a limiting factor in the development of agriculture in this area, but in the broader context the small farms may have significant potential. However, there are advantages of small farms:

- they can not have satisfactory financial performance, and at the same time they much less cause environmental degradation (Ellis, Biggs, 2001);
- the existence of potential of small farms as part of the rural development, especially by strengthening non-agricultural economy (Ashley, Maxwell, 2001);
- the future of small farms consisting of the various measures to stimulate the non-farm economy. These measures can also stimulate the development of agriculture through the improvement of the investment climate in rural areas (Wiggins et al., 2010).

Graph 1. The structure of agricultural holdings by size of used agricultural area in Fruška gora's area (2012)



Source: authors' calculations based on the Census of Agriculture of the Republic of Serbia in 2012

Methodology framework, Goal and Purpose of the Research

For the purpose of this research a specific questionnaire was prepared where the issue of rural development of Fruška gora was divided into four parts. The first part of the questionnaire contained questions that define the basic characteristics of the respondents. In the second

part of the questionnaire questions are related to determine the significance of agriculture and non-agricultural activities (with special emphasis on potential forms of tourism) in the rural development of Fruška gora. The third section of the questionnaire is oriented towards determining the state of development of rural infrastructure, as well as the possible benefits which would arise from the growth of infrastructure investments. Finally, the fourth part of the questionnaire contained questions which determine the limits of rural development of Fruška gora.

Questions are close-ended type. Descriptive statistical method was used in order to adjust the survey data (arithmetic mean, median, mode, and standard deviation) and factor analysis was used to determine the key disadvantages of the rural development of Fruška gora. The survey was conducted in 2014 in the area of Fruška gora, which covered 117 interviewees from this area.

The purpose of this study was to determine the priority activities related to rural development of Fruška gora, having in mind that this area is also a protected natural area. This research was aimed at identifying the determinants that are important in the management (Ignjatijevic et al., 2016) of rural development of Fruška gora.

Findings and discussion

The interviewees are divided into specific categories according to socio-demographic structure (table 1). Within this framework, the questions are related to gender, age of interviewees, as well as their affiliation to specific interest groups. In a sample of 117 interviewees female population was higher (53.8%) compared to the male population (46.2%).

In terms of age distribution, the situation is as follows: the largest number of interviewees (55.6%) belongs to the population between 31 and 50, while the smallest number of interviewees are in the age group over 70 years (1.7%).

The interviewees had the possibility of expression in terms of belonging to certain groups (for their professional preferences):

- municipal/city administrations;
- regional organizations;
- the media
- academic institutions;
- non government organizations;
- financial organizations;
- public companies;
- private sector (industry);
- private sector (service industries);

- private sector (agriculture, hunting, forestry, fishery, water management);
- other (within this group are included interviewees who declared themselves as students and pensioners).

Table 1. Socio-demographic structure of interviewees

Variables	Frequency	%
<i>Interest group</i>		
municipal/city administrations	8	6.8
regional organizations	3	2.6
the media	1	0.9
academic institutions	0	0
non government organizations	5	4.3
financial organizations	6	5.1
public companies	9	7.7
private sector (industry)	7	6.0
private sector (service industries)	39	33.3
private sector (agriculture, hunting, forestry, fishery, water management)	32	27.4
other	7	6.0
<i>Gender</i>		
female	63	53.8
male	54	46.2
<i>Age</i>		
18-30	21	17.9
31-40	34	29.1
41-50	31	26.5
51-60	22	18.8
61-70	7	6.0
over 70	2	1.7
Total	117	100.0

Source: Author's calculation based on the survey data

The majority of the interviewees are persons engaged in the service industry (about 33.3%) and after them are the interviewees who are engaged in agriculture, hunting, forestry, fishery and water management (27.4%). Other categories of interest groups are represented in the range of 0.9 to 7.7%.

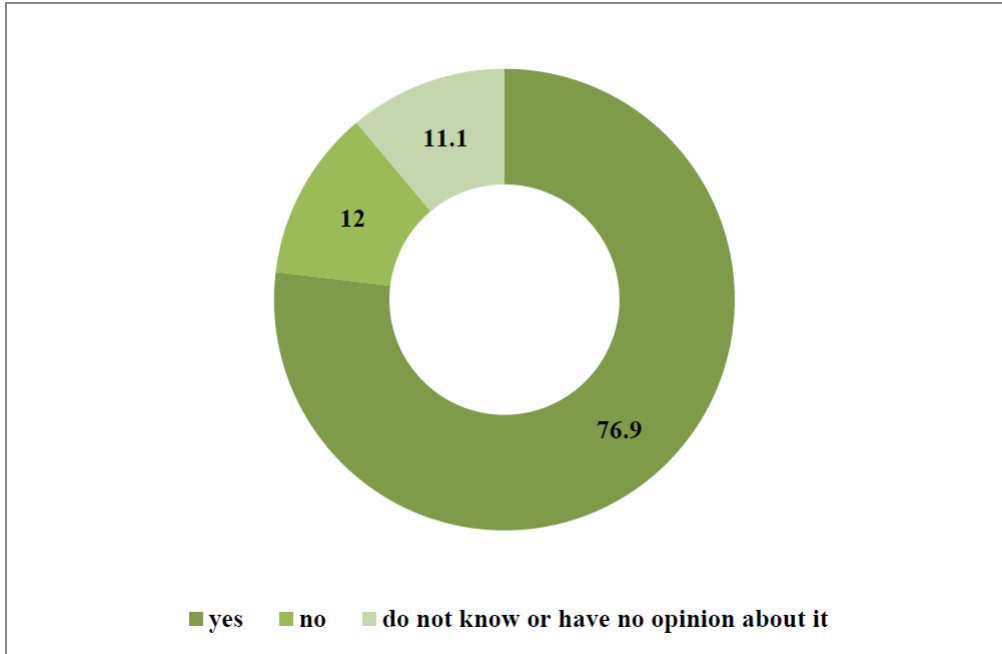
Table 2. The importance of certain economic activities within the rural development of area of Fruška gora

Variables	Frequency	%
<i>The most important economic activity</i>		
agriculture, hunting, forestry, fishery and water management	53	45.3
tourism	54	46.2
industry	3	2.6
other service activities	6	5.1
do not know or have no opinion about it	1	0.9
Total	117	100.0

Source: Author's calculation based on the survey data

The majority of the interviewees evaluated tourism (46.2%) and agriculture (45.3%) as key economic activities in area of Fruška gora (table 2). This attitude of the interviewees was expected, bearing in mind the presence of: a) long-term crisis of Serbian agriculture, b) the global financial crisis. Namely, the Serbian agriculture, which has long been in the unfavorable economic situation, is especially affected by the global financial crisis (Pejanović, 2010). It should be kept in mind that agricultural land occupies approximately 70% of the total area of Fruška gora, that objectively indicate the significant role of agriculture than the results of the survey (Official Gazette of AP Vojvodina, 2004). Considering that Fruška gora is protected area, it was presumed that organic farming is optimal choice that meets all aspects of sustainable development. In this framework, a significant number of interviewees (table 3) identified that organic agriculture is the most optimal choice for the area of Fruška gora (about 47.9%). Considering that the participation of those who gave negative and indifferent attitude collectively larger with respect to the application of organic agriculture in the area of Fruška gora (52.1%), this indicates that interviewees either have a certain resistance in the sense of changing the model of agricultural production, or are not sufficiently aware of the benefits of organic production model. Considering that small farms are typical for this area, the majority of interviewees (76.9%) agreed with the statement that successful rural development of Fruška gora involves improving agricultural production, as well as providing additional sources of income from non-agricultural activities (graph 2).

Graph 2. The interdependence of rural development and improving agricultural production and non-agricultural activities in the area of Fruška gora



Source: Author's calculation based on the survey data

Table 3. Organic agriculture as the optimal choice of agricultural production in the area of Fruška gora

Variables	Options	Frequency	%
Organic agriculture is the most suitable choice for the area of Fruška gora	yes	56	47.9
	no	39	33.3
	do not know or have no opinion about it	22	18.8

Source: Author's calculation based on the survey data

Non-agricultural activities which interviewees most valued in terms of the existence of potentials for further development are tourism, forestry, processing of fruits and vegetables, catering industry (where the average value in the range of 3.22 to 3.44, the value of mode for all variables is 4, and the standard deviation is less than 1 which indicates the high level of agreement among the interviewees). Civil engineering, energy, mining, industry are economic activities which in the opinion of the interviewees do not have any significant development potentials (table 4).

Table 4. The potential of development of non-agricultural activities in the area of Fruška gora

Variables	Mean	Mediana	Mode	Standard deviation
Processing of Fruits and Vegetables	3.41	4.00	4.00	0.767
Processing of Milk and Meat	2.74	3.00	3.00	1.070
Forestry	3.44	4.00	4.00	0.814
Water Management	2.54	3.00	3.00	1.087
Production of Renewable Energy	2.57	3.00	3.00	1.140
Tourism	3.60	4.00	4.00	0.732
Traditional Crafting	2.81	3.00	Multiple	1.159
Trade	2.50	3.00	3.00	1.149
Catering Industry	3.22	3.00	4.00	0.975
Other Industrial Activities	1.94	2.00	1.00	1.003
Other Service Activities	2.56	3.00	3.00	1.102
Transport and Communications	2.45	3.00	3.00	1.082
Mining and Energy	2.03	2.00	1.00	1.062
Civil Engineering	1.83	1.00	1.00	1.036

Source: Author's calculation based on the survey data

Considering that tourism is one of the most important economic activities in the area of Fruška gora, the importance of certain forms of rural tourism was analyzed. According to opinion of the interviewees, the greatest development potentials have the following forms of rural tourism: wine tourism, agritourism, religious tourism, cultural tourism, and sports and recreational tourism (for these variables mean value is in the range of 3.36 to 3.44, a value mode for all variables is 4). The survey results indicate that hunting tourism, spa tourism, manifestation tourism and ecotourism have mediocre development potentials, while fishing tourism, geotourism and gastronomy tourism have the least development potentials. In most of these variables the standard deviation is less than one, it can be noted that there is a high degree of agreement among interviewees on this issue (table 5).

Table 5. Development potentials of certain forms of tourism in the area of Fruška gora

Variables	Mean	Mediana	Mode	Standard deviation
Agritourism	3.35	3.00	3.00	0.735
Wine Tourism	3.44	4.00	4.00	0.803
Hunting Tourism	3.21	4.00	4.00	1.022
Spa Tourism	3.17	3.00	4.00	0.959
Fishing Tourism	2.70	3.00	3.00	1.069
Ecotourism	3.14	3.00	3.00	0.890
Geotourism	2.75	3.00	3.00	0.991
Sports and Recreational Tourism	3.36	4.00	4.00	0.845

Variables	Mean	Mediana	Mode	Standard deviation
Cultural Tourism	3.38	4.00	4.00	0.935
Religious Tourism	3.40	4.00	4.00	0.799
Gastronomic Tourism	2.93	3.00	3.00	1.006
Manifestation Tourism	3.07	3.00	3.00	0.917

Source: Author's calculation based on the survey data

Table 6. Development of rural infrastructure in the area of Fruška gora

Variables	Mean	Mediana	Mode	Standard deviation
Supply of Electricity	3.13	3.00	3.00	0.896
Supply of Gas	2.60	3.00	3.00	1.034
Traffic and Transport Capacity	2.68	3.00	3.00	1.105
Utility Services	2.64	3.00	3.00	1.118
Telecommunications	3.15	3.00	3.00	0.925
Schools	2.98	3.00	3.00	0.999
Health Care	2.91	3.00	3.00	1.034
Postal Services	3.00	3.00	3.00	0.974
Social Protection System ¹	2.33	3.00	3.00	1.114
Market Institutions	2.71	3.00	3.00	1.153

Source: Author's calculation based on the survey data

A key precondition for the successful development of agriculture and other activities is the provision of adequate rural infrastructure (table 6). Supply of telecommunications and electricity, and the provision of postal services according to the opinion of interviewees are most developed in the area of Fruška gora (the mean value for these is in the range of 3.00-3.15, and a high degree of agreement has been confirmed the value of the standard deviation, which is less than 1). Supplies of gas, as well as the availability of traffic and transport and utility services are estimated as the worst. Closely related to the theme of rural infrastructure is the issue of rural investments. Research in this case showed that respondents believe that the greater volume of infrastructure investments have the most significant effect on the growth of incomes of the population, where the mean value is 3.34, and mode value is 5 (table 7).

Table 7. The benefits of future investments in rural infrastructure in the area of Fruška gora

Variables	Mean	Mediana	Mode	Standard deviation
Reducing unemployment	3.03	3.00	1	1.523
The increase in economic activity	3.12	3.00	2	1.384
Better market access	2.77	3.00	3	1.354
Reduction of transport (and other) cost	2.74	3.00	2	1.288
Income growth of population	3.34	4.00	5	1.451

Source: Author's calculation based on the survey data

Table 8. Limitations of rural development of Fruška gora's area

Variables	Mean	Mediana	Mode	Standard deviation
Low population density	2.93	3.00	3.00	0.935
Unfavorable age structure ²	3.13	3.00	3.00	0.826
The departure of the young population from the countryside	3.52	4.00	4.00	0.738
Unfavourable educational structure of the population	3.12	3.00	3.00	0.948
Unplanned land use	3.21	3.00	4.00	0.915
The dominance of agriculture	2.59	3.00	3.00	1.035
Fragmentation of the estates in agriculture	2.77	3.00	3.00	1.003
The lack of self-organization of farmers	3.19	3.00	4.00	0.955
The high unemployment rate	3.44	4.00	4.00	0.904
Further employment reduction	3.38	4.00	4.00	0.839
Insufficient development of small and medium-sized enterprises in all sectors	3.37	4.00	4.00	0.970
Low living standard	3.45	4.00	4.00	0.846
The poor state of rural infrastructure	3.51	4.00	4.00	0.761

Source: Author's calculation based on the survey data

Finally, among a number of variables, the interviewees emphasized the most problematic limitations of further rural development of Fruška gora's area: the departure of the young population from the countryside, the poor state of rural infrastructure, the low living standard, high unemployment rate and a further rise in unemployment, and the insufficient development of small and medium-sized enterprises in all sectors (for the observed variables mean value is in the range of 3.45 to 3.52, and mode value for all variables is 4). Limitations with the lowest negative impacts are: the dominance of agriculture, low population density, and fragmentation of the estates in agriculture. Limitations with the mediocre impacts on rural development in the area of Fruška gora are: unfavorable age and educational structure of the population, unplanned land use (such as the converting agricultural into non-agricultural land), and lack of self-organization of farmers (table 8).

In order to perform data reduction and the identification of main limitations in the rural development of Fruška gora's area the factor analysis was applied with principal components with Oblimin rotation. In this context, there are two factors that explain the variables. The first factor explains the group of seven variables with sufficient saturation. These are the variables related to unemployment and rural infrastructure (The high unemployment rate, Further employment reduction, Insufficient development of small and medium-sized enterprises in all sectors, The poor state of rural infrastructure. ...). The second factor explains the group of six variables with sufficient saturation. In the context of the second factors are most pronounced two variables related to the structure of the population: The unfavorable age structure of the population and Unfavourable educational structure of the population (table 9).

Table 9. Factor matrix for separate variables in the analysis of limitations of rural development in the area of Fruška gora

Factor matrix		
Variables	Components	
	1	2
Further employment reduction	.775	.124
The high unemployment rate	.764	.109
Insufficient development of small and medium-sized enterprises in all sectors	.712	
The poor state of rural infrastructure	.704	.254
Low living standard	.685	.395
The lack of self-organization of farmers	.416	
Unplanned land use	.415	.244
Unfavorable age structure		.753
Unfavourable educational structure of the population	.363	.634
The departure of the young population from the countryside	.366	.595
The dominance of agriculture	.154	.554
Low population density		.533
Fragmentation of the estates in agriculture	.176	.381

Source: Author's calculation based on the survey data

Therefore, the key limitations of rural development of Fruška gora's area are socio-economic factors (unemployment, rural infrastructure and demographic trends).

Conclusions

Management of the rural development requires a comprehensive analysis of existing resources of any rural area. In the case of Fruška gora's area, a specific feature is the interdependence between the rural development and the protection of resources in this area. In the context of key branches of the economy, this area is determined by the development of agriculture and rural tourism on a sustainable basis. Although organic farming is not significantly represented in this area, it is still recognized as the best choice for Fruška gora's area. Except for rural tourism, other non-agricultural activities that have development potentials are: Forestry, Catering Industry and Processing industry (Processing of Fruits and Vegetables). Except these advantages, there are many limiting factors of the rural development of this area, as the poor state of rural infrastructure, unfavorable business structure (small number of SME), low living standard, unfavorable demographic indicators (age structure and education) of the population, as well as problems in the labor market. This limitations (determinants) have a tendency to slow down the further development of this rural area. For overcoming these limitations the comprehensive rural investments are required, according to the interviewees the expected effects of new investments are related to improving employment levels, increased economic activities and the growth of income.

Finally, based on the identification of key determinants relating to the management (Zekic,

Kolarski, 2015) of rural development of Fruška gora's area, the authors propose the following priority actions:

- encouragement of innovation and knowledge transfer in agriculture, through the promotion and certification of organic agriculture model;
- encouraging the development of tourism (wine tourism, agritourism, religious tourism, cultural tourism, and sports and recreational tourism);
- encouragement of sustainable rural development, with the simultaneous development of other non-agricultural activities;
- strengthening the recognition and positioning in the market through the provision of product labels with protected geographical origin;
- providing the economic development, reduce social exclusion and poverty, through the continuous placement of rural investments.

References

1. Ashley, C., Maxwell, S. (2001): *Rethinking rural development*, Development policy review, Vol. 19, No. 4, Overseas Development Institute, pp. 395-425, London, UK available at: <http://onlinelibrary.wiley.com/doi/10.1111/1467-7679.00141/full>.
2. Đukić, S. (2015): *Agroekonomski faktori održivog razvoja regiona Fruške gore*, (neobjavljena doktorska disertacija), Poljoprivredni fakultet, Novi Sad.
3. Đukić, S., Pejanović, Lj. (2014): *Infrastructure as a factor of rural development of the region of Fruška gora*, Thematic Proceedings, International Scientific Meeting „Sustainable Agriculture and Rural Development in Terms of the Republic of Serbia Strategic Goals Realization within the Danube Region – rural development and un(limited) resources“, 5-6. June 2014, Belgrade, Institute of Agricultural Economics, Belgrade, Serbia, pp. 836-852.
4. Đukić, S., Glavaš-Trbić, D. (2012): *Opportunities for Development of Tourism within the Area of Fruška gora*, Thematic Proceedings, International Scientific Meeting „Sustainable Agriculture and Rural Development in Terms of the Republic of Serbia Strategic Goals Realization within the Danube Region – preservation of rural values“, 6-8. December 2012, Tara, Institute of Agricultural Economics, Belgrade, Serbia, pp. 556-573.
5. Ebregt, A., de Greve. P. (2000): “*Buffer zones and their management*”, Policy and best practices for terrestrial ecosystems in developing countries. Theme Studies Series, 5, National Reference Centre for Nature Management: International Agricultural Centre, Wageningen, the Netherlands, available at: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.201.8427&rep=rep1&type=pdf>.
6. Ellis, F., Biggs, S. (2001): *Evolving themes in rural development 1950s-2000s*, Development policy review, Vol. 19, No. 4, Overseas Development Institute, pp. 437-448, London, UK, available at: <http://onlinelibrary.wiley.com/doi/10.1111/1467-7679.00143/abstract>.
7. Ignjatijevic, S., Janjetovic, R., Anicic, A. (2016): *Uslovi poslovanja u Republici Srbiji*

- i rizici u međunarodnom poslovanju*, Oditor, Belgrade, Serbia, vol. 2, no. 3, pp. 7-20.
8. Njegovan, Z., Pejanović, R. (2009): *Ruralna regionalizacija AP Vojvodine: novi teorijsko metodološki pristupi upravljanju ruralnim razvojem*, Poljoprivredni fakultet, Novi Sad, pp. 177-178.
 9. Njegovan, Z., Pejanović, R., Kosanović, N., Đukić, S. (2011): *Ruralni razvoj u konceptu „Master plan održivog razvoja Fruške Gore 2012-2022.“*, Agroekonomika, Departman za ekonomiku poljoprivrede i sociologiju sela, Poljoprivredni fakultet, Novi Sad, Vol. 49-50, pp. 77-87.
 10. Pejanović, R. (2010): *Efekti aktuelne globalne finansijske krize na (agro) privredu Republike Srbije*, Agroekonomika, Poljoprivredni fakultet, Departman za ekonomiku poljoprivrede i sociologiju sela, Vol. 47-48, pp. 5-25, Novi Sad.
 11. Pejanović, R., Đukić, Sanja, Demirović, Dunja, Radosavac, Adriana (2014). *Wine Tourism as a Factor of Rural Development of Fruška gora (Vojvodina Province)*, Book of proceedings, Fifth International Scientific Agricultural Symposium „Agrosym 2014“, Jahorina, October 23 - 26, Faculty of Agriculture, East Sarajevo, pp. 1068-1073.
 12. Pejanović, R., Đukić, Sanja, Njegovan, Z., Glavaš-Trbić, Danica (2012): *Demographic Problems of Rural Development of the Region of Fruška gora*, Book of Proceedings, Third International Scientific Symposium „Agrosym 2012“, Faculty of Agriculture, University of East Sarajevo, Republic of Srpska, Bosnia, Jahorina, 15-17 November 2012, pp. 619-624.
 13. Pejanović, R., Njegovan, Z. (redaktori) (2011): *Ruralni i lokalni ekonomski razvoj AP Vojvodine*, monografija, Poljoprivredni fakultet, Novi Sad.
 14. Pejanović, R., Popović – Vranješ, A., Belić, B., Đukić, S., Tomaš, M. (2011): „*Zdrava hrana u funkciji razvoja etno-turizma u regionu Fruške gore*“, Tematski zbornik, VI Međunarodni naučni skup „Mediterranski dani Trebinje 2011 Turizam i ruralni razvoj – savremene tendencije, problemi i mogućnosti razvoja“, 07-08. Oktobar 2011, Trebinje, pp. 403-411.
 15. *Prostorni plan područja posebne namene Fruške gore do 2022. godine*, Službeni list AP Vojvodine, 16/2004 (Spatial Plan for the Special Purpose of Fruška gora
 16. Republički zavod za statistiku (2012): *Popis poljoprivrede 2012 – Poljoprivreda u Republici Srbiji*, Zemljište, Beograd, available at: <http://pod2.stat.gov.rs/ObjavljenePublikacije/Popis2012/PP-knjiga1.pdf>.
until 2022, Official Gazette of the AP Vojvodina, no. 16/2004), available at: http://www.zavurbvo.co.rs/images/planovi/pppppn_fruske_gore_do_2022.pdf.
 17. Wells, M., Brandon, K., Hannah, L. (1992): *Linking protected area management with local communities* (ISBN 0-8213-2053-X), World Bank, World Wildlife Fund and USAID, Washington, D.C, available at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2000/07/08/000178830_98101911035771/Rendered/PDF/multi_page.pdf.
 18. Wiggins, S., Kirsten, J., Llambí, L. (2010): *The future of small farms*, World develop-

- ment, Vol. 38, Issue 10, Pergamon, pp. 1341-1348, Oxford, United Kingdom, available at: <http://www.sciencedirect.com/science/article/pii/S0305750X1000104X>.
19. Zakon o zaštiti prirode, Službeni glasnik Republike Srbije, br. 36/2009, 88/2010, 91/2010 i 14/2016, (Law of Nature Conservation, Official Gazzette of the Republic of Serbia, no. 36/2009, 88/2010, 91/2010 and 14/2006),
20. Zekic, M., Kolarski, I. (2015): *Uslovi egzistencije preduzeca*, Oditor, Belgrade, Serbia, no. 11, pp. 33-42.

PROBLEMI UPRAVLJANJA RURALNIM RAZVOJEM U PODRUČJU FRUŠKE GORE⁵

Sanja Đukić⁶, Danica Glavaš -Trbić⁷, Nikola Banjac⁸

Apstrakt

U radu se analiziraju determinante od kojih zavisi uspešno upravljanje ruralnim razvojem područja Fruške gore, imajući u vidu prisustvo nacionalnog parka. Ovo specifično obeležje područja Fruške gore višestruko utiče na izbor optimalnog modela ruralnog razvoja ovog područja. U tu svrhu je sprovedeno anketno istraživanje na području Fruške gore, u kojem je učestvovalo 117 ispitanika sa tog područja tokom 2014. godine. U radu su korišćene statističke metode u cilju donošenja zaključaka na osnovu dobijenih podataka iz anketnog istraživanja. Rezultati istraživanja pokazuju da je na ovom području prisutna dominantnost poljoprivrede i turizma u okviru ruralnog razvoja Fruške gore, sa nezadovoljavajućom ruralnom infrastrukturom. Socioekonomske determinante su ključni nedostaci koji utiču na upravljanje ruralnim razvojem područja Fruške gore. Autori zaključuju da u budućem modelu upravljanja ruralnim razvojem područja Fruške gore treba planirati razvoj organske poljoprivrede i ruralnog turizma na održivim osnovama, praćen investijama.

Ključne reči: *upravljanje ruralnim razvojem, zaštićena područja, područje Fruške gore*

5 Ovaj rad je rezultat istraživanja u okviru projekta „Pravo na prvu šansu“, koji je finansiran od strane Pokrajinskog sekretarijata za nauku i tehnologiju Autonomne pokrajine Vojvodina.

6 Dr Sanja Đukić, Univerzitet u Novom Sadu, Poljoprivredni fakultet, Trg Dositeja Obradovića br. 8, 21000 Novi Sad, Srbija, Telefon: +381 66 421 845, E-mail: djukasanja@gmail.com.

7 Danica-Glavaš Trbić M.Sc. Asistent, Univerzitet u Novom Sadu, Poljoprivredni fakultet, Trg Dositeja Obradovića br. 8, 21000 Novi Sad, Srbija, Telefon: +381 63 8878 701, E-mail: danicagt@polj.uns.ac.rs.

8 Nikola Banjac M.Sc., Generalni sekretar Skupštine AP Vojvodine, Ulica Vladike Platona bb, 21000 Novi Sad, Srbija, E-mail: nbanjac@skupstinavojvodine.gov.rs.

ENVIRONMENTAL PERFORMANCES OF AGRICULTURE IN THE EUROPEAN UNION COUNTRIES

Ivana Ilić¹, Bojan Krstić², Sonja Jovanović³

Summary

The strong impact of agriculture on the environment has caused the integration of environmental objectives into the Common Agricultural Policy. In parallel with the development of CAP, attempts have been made to make agricultural production more ecologically oriented. The subject of this paper explores the environmental performance at the level of the European Union, with special emphasis on the environmental performance of the agriculture. The environmental performances of agriculture will be analyzed on the basis of the data on Environmental Performances Index (EPI) for the issue area – Agriculture. The aim of this research is to classify the European Union countries into homogenous groups according to the level of achieved environmental performance of agriculture.

Key words: *Common Agricultural Policy (CAP), environmental performances, European Union*

JEL: *Q18, Q51*

Introduction

Growing environmental problems at a global and local level have created the need for the formulation of a series of documents governing the issue of environmental protection. Given the limited level of natural resources and the inability of renewal of resources due to the effects of high level of natural pollution in the European Union, the focus has been on raising the awareness of policy makers of the need to accelerate and enhance the use of environmentally sustainable practices.

Special emphasis is placed on the agricultural sector, which needs to solve two conflicting

-
- 1 Ivana Ilić M.Sc., University of Niš, Faculty of Economics, Trg kralja Aleksandra Ujedinitelja no. 11, Niš, Serbia, Phone: +381 64 57 34 347, E-mail: ivanica1404@yahoo.com
 - 2 Bojan Krstić Ph.D., Full Professor, University of Niš, Faculty of Economics, Trg kralja Aleksandra Ujedinitelja no. 11, Niš, Serbia, Phone: +381 18 528 685 E-mail: bojan.krstic@eknfak.ni.ac.rs
 - 3 Sonja Jovanović Ph.D., Associate Professor, University of Niš, Faculty of Economics, Trg kralja Aleksandra Ujedinitelja no. 11, Niš, Serbia, Phone: +381 18 528 655, E-mail: sonja.jovanovic@eknfak.ni.ac.rs

tasks. On the one hand, there is a need for increased food production due to the accelerated growth of the world population and resorting to chemical preparations in order to achieve large scale production of agricultural products. On the other hand, there is agriculture, as a major human activity, associated mainly with the use of natural resources, which has a direct impact on the environment.

Agricultural policy has traditionally been oriented towards ensuring the availability of necessary food for human consumption. Policy objectives are primarily directed at achieving the desired level of production, meeting the needs of the market, while taking into account the measures and mechanisms for this purpose. This long-standing practice, without regard to the consequences, which may be positive or negative for the environment, has resulted in over-exploitation of natural resources, water pollution, and disruption of the balance of biodiversity. In order to prevent further degradation of the environment through agricultural activities, environmental policy becomes an integral part of the Common Agricultural Policy (CAP), the most important and most comprehensive sectoral policy that provides a high level of support and protection of European agriculture.

The strong impact of agriculture on the environment has caused that the integration of environmental objectives into the Common Agricultural Policy becomes a priority. In parallel with the development of CAP, attempts have been made to make agricultural production more ecologically oriented. One of the institutions that invests a significant amount of work in the solution of agro-environmental problems, highlighting the need for better understanding and monitoring of causality of agriculture and environment is OECD.

„The Common Agricultural Policy (CAP) provides a major opportunity for improving environmental management in the agriculture sector, as farming income depends considerably on CAP support. In this regard, the effects of CAP on the environment should be better analyzed, on the one hand, while, on the other hand, one should also take a look at the impact of environmental measures on agriculture. Environmental efforts pursued through the Common Agriculture Policy need to be better targeted geographically, to maximise their effectiveness over time“ (European Commission, 2006).

The subject of this research explores the relationship between the overall environmental performance of the national economy and environmental performance of agricultural production in that country. In other words, the paper analyzes the environmental performance at the level of the European Union, with special emphasis on the environmental performance of the agriculture sector. The environmental performance of agriculture will be analyzed on the basis of the component of the EPI, Ecosystem Vitality, and the issue area within this component – Agriculture. *The aim of this research* is to classify the EU countries into homogenous groups according to the level of achieved environmental performance of agriculture.

Review of literature

The primary objectives of the Common Agricultural Policy of the European Union have been set up to promote agricultural production in the region, without taking into

account the ecological disturbance they make. During the 1960s and 1970s, this policy contributed significantly to the increase in agricultural production in Europe, and was considered as a positive version of growth in the postwar period. However, since the 1980s, the negative effects of increased agricultural production (water pollution and depletion of soil) on the environment began to emerge. Since then, systemic reforms in terms of preventing the negative effects of agriculture on the environment have started. The first indication of the introduction of environmental protection measures, as an important element of agriculture, can be found in Mansholt plan at the end of the 1960s and the beginning of 1970s (European Commission, 2000).

At the European level, the environmental aspect of agricultural production over time has gained increasing importance, especially when it comes to the full implementation of the system to support the price of agricultural products, which led to a significant intensification of production methods and the visible negative effects on the environment (Pezaros, Unfried, 2002). The European Commission, therefore, launched several initiatives related to the development of sustainable agriculture. In this regard, instruments such as agro-environmental measures have gained in importance, with efforts to fully integrate environmental policy into CAP. Reform of the CAP in 1992 and Agenda 2000 were major steps towards regulation of measures and instruments of this policy relating to the environmental aspect of agriculture.

The first in a series of CAP reforms, with substantial changes in terms of environmental protection in agricultural production, is Mac Sharry reform of 1992. This reform brought several structural changes in the functioning of agricultural production, and one of them was related to the introduction and support of agro-environmental measures and afforestation of agricultural land. Major innovation resulting from the Mac Sharry reform was the introduction of environmental protection measures (Drost, 2013). These protective measures were applied in the form of subsidies to agricultural producers, cultivating good environmental practice (Institute for agriculture and trade policy, 2007).

Since 1992, CAP has been gradually adjusted to take into account objectives of sustainability, including environmental protection, with a move away from price support to production towards support measures to income of farmers, through direct payments and rural development measures (European Commission, 2013). Furthermore, the reform envisaged increase in costs from year to year through the acceptance of agro-environmental measures by the European Union member states. Despite the anticipated efforts of the CAP, agricultural support remained high, while environmental protection was minimal, which pointed to the need for additional reforms.

Agenda 2000 was created in 1999 with the aim of highlighting the importance of survival of the environment. It has introduced several innovations related to the environment, and defined a large number of new provisions, one of which was the introduction of a framework for rural development as well as the horizontal rules for direct support schemes to connect with the environment and other non-market criteria

(Pezaros, Unfried, 2002). These changes represent a significant step forward towards the integration of environmental issues and sustainability issues in the CAP, with a commitment to a multifunctional approach to agricultural production (Phelps, 2007). One of the priority objectives, implicitly presented in Agenda 2000, is the protection of the environment, with special CAP pillar aimed at rural development policy. More specifically, the second pillar emphasizes the importance of sustainable agriculture and environmental protection (Madžar, 2002).

The emergence of CAP in the era of food shortage in Europe aimed at ensuring sufficiency in food for the European population regardless of the environmental consequences of such production. This practice was changed significantly by Agenda 2000, which puts the focus on the manner and conditions under which the food is produced, with an emphasis on a balanced relationship between economic activity and the natural environment. It was imperative to reduce the impact of economic activities on the environment and strengthen the environmental protection by CAP provisions. This was achieved by using agro-environmental measures, which are an obligatory part of the rural development program of member states, whose realization is controlled by the European Commission (European Commission, 2000). Agricultural producers, supported by the European Union through direct payments, had the obligation to respect the principle of sustainable agricultural production, i.e. comply with the goals of environmental protection. In other words, the introduction of a new pillar entailed the transfer of funds, diverting funds to support farmers through direct subsidies to sectors and functions related to the provision of public goods (environmental protection and rural development functions) (Janković, 2009). The real effects of Agenda 2000 and earlier Mac Sharry reform of 1992 laid the foundations for later reform activities.

Assessment of the results achieved in previous reforms made clear the need to increase efforts to achieve the initial goals. In order to achieve this, it was necessary to integrate the new guidelines into CAP, which was the basis for the next reform. In 2003, a new CAP reform cycle was initiated, because of the large subsidies to agricultural practices that were not consistent with the protection of the environment and the regulatory framework for food security, called Fischler reform (Swinnen, 2008). The basis of the reform consisted of the provision of economically viable agriculture, while strengthening its market orientation and increasing food security and quality, preventing the concentration of households that harms the balance of the natural environment, and fairer distribution of direct aid between farmers, to make environmental problems better integrated into the CAP support system and strengthen rural development policy (Garzon, 2006).

As previous reform imposed the obligation to respect environmental regulations in agricultural production, this reform introduced the obligation to harmonize production with food security rules for farmers who get help through direct payments. Key innovation was the introduction of the single payment scheme for farmers of the European Union, independent of production volume. Using the single payment scheme abolished the link between production and subsidies, and one of the reasons for this

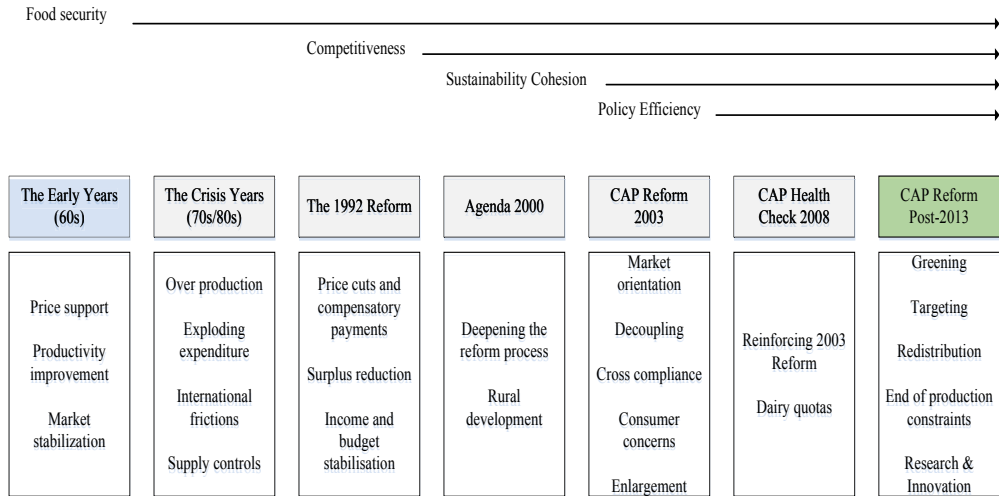
was to improve the ecologically and economically sustainable agriculture (Božić et al., 2011).

Health check of 2008 relates to the improvement of the solutions brought by reforms in the period 1992-2003, not in the sense of radical changes to existing measures, but only regarding their adjustment to the new challenges of the XXI century. The aim of this endeavor was to make single payment schemes more efficient and easier, and to anticipate ways to face the challenges in terms of climate change, growing consumption of biofuels, water management, use of renewable energy, and biodiversity protection (Preparing for the “health check” of the CAP reform, 2007). When it comes to climate change (changes in precipitation, extreme weather conditions, temperature levels, water availability), farmers should get assistance in overcoming these problems, which they previously did not encounter. Rural development policy was more directed towards preserving the environment, protecting biodiversity, and water management through appropriate policy of cross-compliance of agricultural activities financially supported by the European Union and preservation of the environment, human, animal, and plant health protection.

Due to the increasingly pronounced challenges and risks in the sector of agriculture, rural development policy has had to assume greater importance, as well as a higher amount of funds for the second pillar of the CAP. Another improvement of the CAP special measures through Health check related to the support to farmers producing milk, beef, goat, and sheep meat and rice in disadvantaged regions or vulnerable agricultural species, and for certain agricultural activities that require additional agro-environmental benefits (Timerman, 2009). Apart from this, specific support may be granted to improve animal welfare standards, and can be used for risk management (insurance schemes for natural disasters and mutual funds for animal diseases).

The last reform of the CAP was carried out in 2013, when new CAP for the period 2014-2020 was adopted, in line with the ruling EU development strategy, Europe 2020. This strategy defined the leading targets for the future, and the main initiatives to be taken in order to achieve the objectives, including sustainable growth implying low carbon level, efficient sustainable use of available resources, protecting the environment while preventing the loss of biodiversity and reduction of pollution, the development of new green technologies and production methods, and others (Europe 2020). Building on the objectives and initiatives of the Europe 2020 strategy, CAP 2014-2020 defines new goals and provides for new measures in terms of environmental conservation and respect for the principles of ecological development.

Figure 1. Historical development of the CAP



Source: European Commission, The history of the CAP

Three main objectives of long-term CAP 2014-2020 are: stability in food production, sustainable management of natural resources and climate change, and balanced territorial development (Overview of CAP Reform 2014-2020, 2013). For the analysis in this paper, goal of sustainable management of natural resources and climate change is particularly important. The measures provided for achieving this objective include supporting the “green growth” through innovation and application of new technologies, development of new products, changes in production processes. It is particularly important to continue to mitigate the impact of climate and gradually adapt agriculture to the effects of extreme climate change. The novelty introduced by the last reform refers to the “greening” and more uniform distribution of the funds within the first pillar (market support and direct payments), and under the second pillar (rural development), the focus is on climate change, environment, competitiveness, and innovation. Rural development policy has become a key element of the CAP to achieve targeted actions concerning the welfare of the environment at the EU level.

Green direct payments, as a completely new instrument of CAP, are intended for agricultural producers who respect the three mandatory agricultural practices, i.e. diversity of crops, pasture maintenance, and preservation of ecological areas during production. More specifically, they are directed towards production, which is useful for the environment and climate in most of utilized agricultural land (Overview of CAP Reform 2014-2020, 2013). The importance of green direct payments is confirmed by the fact that 30% of direct payment funds is directed towards them in the future (European Parliament, 2014). Greening as a key feature of recent reforms has become an obligation of all farmers across the European Union, with the degree of realization varying depending on the type of agricultural production.

Methodology

For the purpose of considering the situation of the environment, the Environmental Performance Index (EPI) was developed in 2006, whose forerunner was the Environmental Sustainability Index (ESI) of 1999. Environmental Performance Index assesses the environmental performance of a country, observing environmental performance indicators. The main objective of the EPI methodology is to “draw attention to how countries are ahead in achieving the objectives of environmental policy” (Environmental Performance Index, 2010). EPI assesses the social and economic driving forces, pressures on the environment, the state of the environment, and impact on human health and ecosystems (Ilić, Hafner, 2015).

Generally speaking, EPI provides a powerful tool for steering individual countries and the world as a whole toward environmental sustainability (Khayat, 2012). Environmental Performance Index strives to meet the needs of the governments to monitor the achieved environmental performance and offers methods for assessing the efficiency of the environmental policy. EPI ranks countries according to high-priority environmental issues in two areas: Protection of human health and Protection of ecosystems (Environmental Performance Index, 2016). For monitoring the achievement of these two objectives in the context of environmental policy, 9 issue areas are reviewed, with 20 indicators grouped into two key index *components*, *Environmental Health* and *Ecosystem Vitality*. Indicators in the EPI assess countries’ proximity to internationally established targets or, in the absence of agreed-upon targets, how individual nations compare relative to the best performing countries (Environmental Performance Index, 2016).

Component *Environmental Health* covers the Impact on health, and, next to it, the Quality of air and Water and sanitation as the most important issue areas. Under the component *Ecosystem Vitality*, the following environmental policy issue areas are perceived: Climate and Energy, Biodiversity and Habitat, Fisheries, Forestry, Agriculture and Water resources.

The paper focuses on *Agriculture* as one of the issue area of the component *Ecosystem Vitality* within EPI, which will be viewed in more detail, as well as the indicators that it includes in the structure of EPI. The structure of *Agriculture*, has varied over the years, including the following indicators: Cropland Intensity, Irrigation Stress, Agricultural Subsidies, Pesticide Regulation, and Burned Land Area (Environmental Performance Index, 2008); Agricultural Water Intensity, Agricultural Subsidies, Pesticide Regulation (Environmental Performance Index, 2010); Agricultural Subsidies, Pesticide Regulation (Environmental Performance Index 2012, Environmental Performance Index, 2014); Nitrogen use efficiency, Nitrogen balance (Environmental Performance Index, 2016).

Nitrogen use efficiency as indicator within EPI, allows monitoring of potential environmental damages, as a result of intensive agricultural production accelerated using nitrogen. Specifically, this indicator reflects the proportion of nitrogen inputs (fertilising, nitrogen fixation and nitrogen deposition among other things) and outputs (denitrification and the emission of ammonia among other things) in crop production,

which are essential for its success. Increasing nitrogen use efficiency is directly linked to the increased productivity of crops, with nitrogen being retained in the soil and affecting the degradation of the environment (Environmental Performance Index, 2016). In agricultural production, farmers induce the production of certain species, releasing reactive nitrogen, which greatly affects the disturbance of the earth's natural nitrogen balance and contributes to changes in the ecosystem, both positive and negative (including increased agricultural productivity in nitrogen-limited areas, ozone-induced injury to crops and forests, over-enrichment of aquatic ecosystems, biodiversity losses, visibility-impairing haze, and global climate change) (Ribaud et al., 2011).

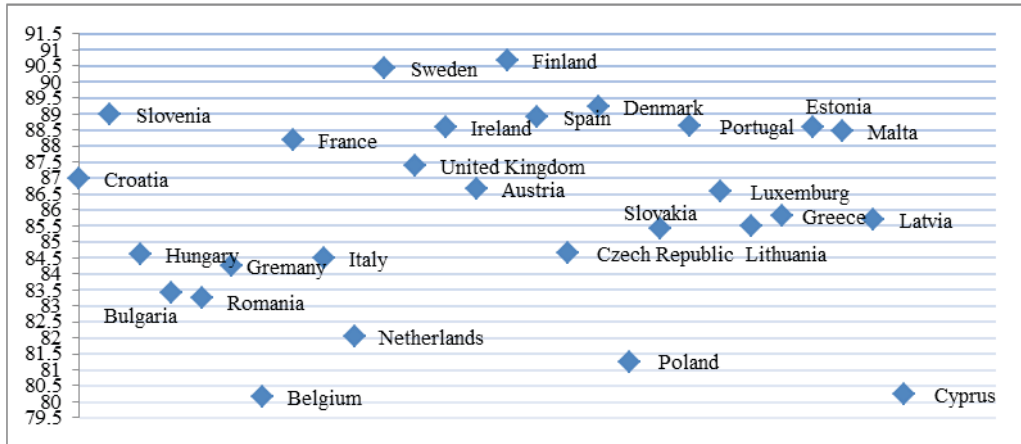
Nitrogen balance, as an indicator of EPI, measures the level of nitrogen discharged into the environment, as a result of uncontrollable use of fertilizers in agricultural production. The EPI also uses a nitrogen balance variable as a proxy for agricultural drivers of environmental damage. This indicator reflects a nation's efforts to limit excessive use of nitrogen fertilizers, and thus minimize environmental damage (Environmental Performance Index, 2016). Pollution with nitrogen applied in agriculture as contaminant of food achieves a negative impact on air and water quality and leads to ozone depletion and accelerating climate change. In addition to excessive use of nitrogen in agriculture causing a host of environmental problems, it also leads to health problems in humans.

In accordance with the research subject and the corresponding objective, the following initial hypotheses have been defined:

- 1. Among overall environmental performances of the European Union and the environmental performance of the agricultural there is a positive correlation.*
- 2. Higher level of environmental performance at the level of the national economy means higher level of environmental performance of the agriculture.*

Results and discussion

The 2016 EPI Report covered 180 countries around the world. Of the EU countries, which are of interest in this paper, the best country in the ranking of countries according to EPI index is Finland, occupying the first place. By contrast, Belgium is at the bottom of the list of selected countries, which is positioned in the 41st place. Most European Union countries are highly ranked in the list, with a slightly lower percentage of achieved environmental performance level. Accordingly, among the top ten countries in the world, there are Sweden, Denmark, Slovenia, Spain, Portugal, Estonia, and Malta. Other countries in the group of countries analyzed in this paper are characterized by the high value of EPI, which ranges from 80 to 88, indicating a high level of environmental protection over the years (*Figure 2*).

Figure 2. Position of the European Union countries by the EPI in 2016

Source: Authors' presentation

Aggregate indicator, Environmental Performance Index (EPI), comprises a number of factors in its structure, which is why further analysis in the paper shall be directed towards the research subject itself, *Agriculture*, as one of issue of the component *Ecosystem Vitality*. Following the score of the European Union countries in the framework of Agriculture, it can be noted that Estonia, Greece, Hungary, Portugal, Romania, and Sweden are leading the world in terms of the maximum preservation of the environment when carrying out agricultural activities, whose impact is monitored through *nitrogen use efficiency* and *nitrogen balance*. In other countries that are the subject of analysis, there is a large range in values that characterize *agriculture*, as one of environmental policy issue areas. The weakest environmental protection in agriculture is found in Cyprus, where nitrogen is rather uncontrollably used in production, considered a pollutant to the living environment with harmful effects on water, air, and soil.

In order to investigate the relationship between the level of environmental performance (EPI) and *Agriculture*, as an environmental policy issue area, correlation analysis was applied. The relationship of the two observed variables is characterized by value of the positive correlation coefficient of 0.368, while the realized level of significance is Sig. 0.045 (*Table 1*). Based on this, correlation between the variables is statistically significantly different from zero, where the strength of the correlation, i.e. the degree of correlation between them, is moderate. Spearman correlation coefficient of the environmental performance and agriculture shows the result approximate to the Pearson correlation coefficient, the correlation between variables being of medium intensity. The results of correlation analysis confirm the first hypothesis that between the overall environmental performance of the European Union countries and the environmental performance of the agricultural sector there is a positive correlation.

Table 1. Correlation of the *EPI* and issue area – *Agriculture*

		EPI	Agriculture
EPI	Pearson Correlation	1	0.368
	Sig. (2-tailed)		0.045
	N	28	28
Agriculture	Pearson Correlation	0.368	1
	Sig. (2-tailed)	0.045	
	N	28	28

Source: Authors' presentation

After establishing the correlation between the selected variables, based on this, the analysis of the classification of EU countries in homogenous groups was carried out. For the classification of countries into homogenous groups according to the value of *EPI* and value of *Agriculture*, as one of the issue areas in the structure of the EPI, hierarchical clustering was applied, using the Ward method (method of variance). Based on the square of Euclidean distance between the countries of the European Union according to the EPI value given in the agglomeration scheme, it was found that countries should be classified into three homogeneous groups.

The first cluster according to the EPI values includes: Slovenia, France, Sweden, Ireland, Finland, Spain, Denmark, Portugal, Estonia, Malta, and these are the 10 leading countries in terms of the level of environmental performance. The average value of the EPI within the first cluster is 89. The second cluster groups those countries whose average value of EPI index is about 85, which are: Croatia, Hungary, Bulgaria, Romania, Germany, Italy, Great Britain, Austria, the Czech Republic, Slovakia, Luxembourg, Lithuania, Greece, and Latvia. More specifically, these are the countries whose EPI value ranges from 83 to 87. The third cluster includes Belgium, the Netherlands, Poland, and Cyprus, and this is the group of EU countries with the lowest level of ecological preservation (*Table 2*).

Table 2. Position of the European Union countries by clusters, based on the EPI index

Cluster	Frequency	Mean of EPI	Countries
1	10	89.0710	Slovenia, France, Sweden, Ireland, Finland, Spain, Denmark, Portugal, Estonia, Malta
2	14	85.3329	Croatia, Hungary, Bulgaria, Romania, Germany, Italy, United Kingdom, Austria, Czech Republic, Slovakia, Luxemburg, Lithuania, Greece, Latvia
3	4	80.9200	Belgium, Netherlands, Poland, Cyprus
Total	28	86.0376	

Source: Authors' presentation

In the same way, the grouping of countries in the European Union according to the value of *Agriculture*, as a component of EPI was conducted. The analysis gave rise to two clusters, which are mutually noticeably different in terms of the degree of impact of the indicator (*nitrogen use efficiency* and *nitrogen balance*) of agricultural production on the environment. Most countries taken for analysis are in the first cluster, which is characterized by a high degree of conservation of nature in carrying out agricultural activities, namely high-

controlled use of nitrogen as the cause of the increased productivity of manufacturing. In contrast to this group of countries, there are Cyprus, Malta, Luxembourg, Ireland, Great Britain, Netherlands, Belgium, and Germany, which use nitrogen excessively in agricultural production, thereby damaging ecological stability, and ultimately achieving a lower level of environmental performance, which is an important indicator of environmental preservation. Very low average value of performance in the area of agriculture can be seen in the second cluster due to uncontrolled use of nitrogen in agricultural production (*Table 3*).

Table 3. Position of the European Union countries by clusters according to the values of the EPI issue area – *Agriculture*

Cluster	Frequency	Mean of Agriculture	Countries
1	20	93.5480	Slovenia, France, Sweden, Croatia, Hungary, Bulgaria, Romania, Italy, Austria, Czech Republic, Slovakia, Lithuania, Greece, Latvia Finland, Spain, Denmark, Portugal, Estonia, Poland
2	8	57.9175	Cyprus, Malta, Luxembourg, Ireland, United Kingdom, Belgium, Netherlands, Germany
Total	28	83.3679	

Source: Authors' presentation

Agricultural production of countries listed in the second cluster is of intensive type and represents a huge threat to the environment. The use of pesticides and fertilizers generates a negative impact on people and nature, as shown through numerous studies. Agriculture in these countries is one of the leading sectors of their economy by level of pollution it causes, because it burdens the environment with nitrogen, phosphorus, and heavy metals that disrupt natural biodiversity, destroying certain useful species in the ecosystem. In Germany, the release of nitrogen gas into the atmosphere is alarmingly high, with about 60% of the emissions originating from agriculture (Federal Environment Agency, 2015). German government is struggling with this situation by introducing stricter regulations and encouraging change in the way of production. On the other hand, Denmark has set a target that, by 2020, overall agricultural production is converted into 100% organic and biodynamic production (LifeGate, 2015).

Grouping EU countries according to two criteria, the total value of the *EPI* and the values of issue area – *agriculture*, pointed to differences in position by clusters for Ireland and Malta. These two countries, by the global environmental performance, are classified into 10 leading countries of the world, while in respect of agriculture, as an environmental policy issue area, their ranking is very poor, due to the high level of pollution in the performance of agricultural production. The second hypothesis cannot be confirmed due to the deviation that exists in the said countries of the European Union, i.e. one can only partially confirm that higher levels of environmental performance at the level of the national economy mean higher level of environmental performance of the agriculture sector.

Table 4. Results of the ANOVA procedure for variable *EPI* and issue area – *Agriculture*

Variable		Sum of Squares	Df	Mean Square	F	Sig.
EPI	Between Groups	203.728	2	101.864	84.356	0.000
	Within Groups	30.189	25	1.208		
	Total	233.917	27			
Agriculture (nitrogen use efficiency, nitrogen balance)	Between Groups	7254.472	1	7254.472	71.516	0.000
	Within Groups	2637.394	26	101.438		
	Total	9891.866	27			

Source: Authors' presentation

To check the statistical significance of the difference of the average values of the variables (*EPI* value and environmental policy issue area – agriculture) between clusters, one-way ANOVA analysis is applied. Since in both cases the level of significance is less than 0.05, it can be concluded that there is homogeneity of variance for the selected variable among the countries of the European Union within the group, and that there are statistically significant differences of average values for the variable between clusters (*Table 4*).

Conclusion

Agricultural production at the level of the European Union and at the global level can have a strong positive and negative impact on the environment. Feedback exists in terms of dependence of future agricultural production on the sustainable management of natural resources, primarily considering soil, water, and climate. In this sense, agricultural activities should not be restricted, but appropriate incentives introduced for the development of sustainable production systems and ensuring the protection of the environment. Therefore, recognizing the need for sustainable management of agricultural production and the ecological balance in the European Union, in the course of time a large number of documents which regulate this issue have been defined.

The Common Agricultural Policy has, since its inception to the present day, constantly evolved to reflect the changing needs of agriculture and society at large. Consideration of ecological aspects through CAP dates from 1992 (MacSharry reform), when it was realized that it was necessary to introduce agro-environmental measures, which encouraged farmers to provide environmental services that are much more than the application of good agricultural practices. Coming reforms paid more attention to the survival of the environment and better preservation over time. Thus, Agenda 2000 introduced a new pillar of the CAP, dedicated to rural development policy that emphasizes the importance of sustainable agriculture, environmental protection. Since 2003, there has been an obligation to respect the environmental regulations in the agricultural production and respect the standard of food security and quality. Over time, the CAP aimed at full compliance with environmental

principles, coping with climate change, tendency to preserve the quality of the environment and biodiversity, and the main novelty introduced were green direct payments to promote greener growth. Greening as a key feature of recent reforms has become an obligation for all farmers across the European Union, with a strong focus on sustainability and environmental performance of agriculture.

The analysis of environmental performance index for the countries of the European Union has pointed to the existence of medium-level quantitative agreement of the positive direction between the achieved environmental performance and environmental policy area—agriculture. In addition, cluster analysis revealed that most of the countries selected for the study take into account the use of nitrogen in agricultural production, thus impacting on the environment in terms of reducing pollution.

Literature

1. Božić D., Bogdanov N., Ševarlić M. (2011): *Ekonomika poljoprivrede*, Univerzitet u Beogradu - Poljoprivredni fakultet, DAES - Društvo agrarnih ekonomista Srbije, Beograd
2. Drost, V. S. (2013): *The Agricultural Sector in Poland and Romania and its Performance under the EU-Influence*, Freie Universität Berlin, Berlin
3. European Commission (2000): *The Founding Fathers of the EU*, (available at: http://europa.eu/about-eu/eu-history/founding-fathers/pdf/sicco_mansholt_en.pdf)
4. European Commission (2006): *Integrating Environmental Concerns into EU Agricultural Policy*, (available at: http://ec.europa.eu/environment/integration/research/newsalert/pdf/24na2_en.pdf)
5. European Commission (2000): *Agenda 2000 – A CAP for the future*, (available at: http://ec.europa.eu/agriculture/publi/review99/08_09_en.pdf)
6. European Commission (2007): *Communication from the Commission to the European Parliament and the Council- Preparing for the “health check” of the CAP reform*, (available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:072:2:FIN:EN:PDF>)
7. European Commission (2010): *Europa 2020*, (available at: <http://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf>)
8. European parliament (2014): *CAP 2014-2020 Tools to enhance family farming: opportunities and limits* (available at: [http://www.europarl.europa.eu/RegData/etudes/note/join/2014/529051/IPOL-AGRI_NT\(2014\)529051_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/note/join/2014/529051/IPOL-AGRI_NT(2014)529051_EN.pdf))
9. European Commission (2015): *The history of the CAP*, (available at: http://ec.europa.eu/agriculture/cap-history/index_en.htm)
10. Environmental Performance Index (2008): (available at: http://www.cm-lousa.pt/_Uploads/agenda21local/docs/6_performance/ENVIRONMENT%20PERFORMANCE_INDEX2008.pdf)

11. Environmental Performance Index (2010): (available at: http://epi.yale.edu/files/2010_epi_report.pdf)
12. Environmental Performance Index (2012): (available at: http://epi.yale.edu/files/2012_epi_report.pdf)
13. Environmental Performance Index – Full Report, (2014): (available at: http://epi.yale.edu/files/2014_epi_report.pdf)
14. Environmental Performance Index – Full Report, (2016): (available at: http://epi.yale.edu/sites/default/files/EPI2016_FINAL%20REPORT.pdf)
15. Federal Environment Agency (2015): *Nitrogen surplus – an environmental problem of entirely new proportions*, (available at: <https://www.umweltbundesamt.de/en/press/pressinformation/nitrogen-surplus-an-environmental-problem-of>)
16. Garzon, I. (2006): *Reforming the common agricultural policy: history of a paradigm change*, Basingstoke: Palgrave Macmillan
17. Ilić, I., Hafner, P. (2015): Environmental aspects of the process of globalization – negative implications and crisis, *Facta Universitatis Series: Economics and Organization*, vol. 12, no 2, pp. 109 - 120
18. Institute for agriculture and trade policy (2007): *The Common Agricultural Policy: A Brief Introduction*, (available at: <http://www.iatp.org/documents/the-common-agricultural-policy-a-brief-introduction>)
19. Janković, D. S. (2009): *Evropska unija i ruralni razvoj Srbije*, Futura, Novi Sad
20. Khayat, M. (2012): The Role Of Documentation And Measurement Tools In Governing Urban Impact On Environment (A Study on Erbil City Rapid Development), *Zaytoonah University International Engineering Conference on Design and Innovation in Infrastructure 2012*, Amman – Jordan, (available at: <http://www.arbilengineering.com/publication/final%20submission%2029-5-2012.pdf>)
21. Life Gate (2015): *Denmark, objective 100% organic*, (available at: <http://www.lifegate.com/people/lifestyle/denmark-organic-farming>)
22. Madžar, L. (2002): *Poslovanje sa evropskom unijom – Zajednička agrarna politika*, Visoka poslovna škola Novi Sad, (available at: www.vps.ns.ac.rs/Materijal/mat14579.doc)
23. Overview of CAP Reform 2014-2020 (2013), European Commission, Agricultural Policy Perspectives Brief
24. Pezaros, P. D., Unfried, M. A. (2002): *The Common Agricultural Policy and the Environmental Challenge*, Instruments, Problems and Opportunities from Different Perspectives, European Institute of Public Administration/Institut européen d'administration publique.
25. Phelps, J. R. (2007): Much ado about decoupling: evaluating the environmental impact of recent European Union agricultural reform, *Harvard Environmental Law Review*, 31, 279.

26. Ribaud, M., Hansen, L., Livingston, M., Mosheim, R., Williamson, J., Delgado, J. (2011): Nitrogen in agricultural systems: Implications for conservation policy. *USDA-ERS Economic Research Report*, 127.
27. Swinnen, J. F. (2008): *The perfect storm: The political economy of the Fischler reforms of the common agricultural policy*, Centre for European policy studies- Ceps, Brussels
28. Timmerman, P. (2009): *The Health Check: further steps to adapt the Common Agricultural Policy to new realities*. Egmont European Affairs Paper Royal Institute for International Relations

Ekološke performanse poljoprivrede u zemljama Evropske unije

Ivana Ilić⁴, Bojan Krstić⁵, Sonja Jovanović⁶

Rezime

Jak uticaj poljoprivrede na životnu sredinu doveo je do uključivanja ekoloških ciljeva u Zajedničku agrarnu politiku (ZAP). Paralelno sa razvojem ZAP, odvija se proces orijentacije poljoprivrede ka većem uvažavanju ekoloških ciljeva. Predmet ovog rada je analiza ekoloških performansi na nivou zemalja Evropske unije, sa posebnim naglaskom na ekološke performanse poljoprivrede. Analiza ekoloških performansi poljoprivrede biće izvršena na osnovu podataka o Indeksu ekoloških performansi (EPI) koji se odnose na područje poljoprivrede. Cilj rada jeste klasifikacija zemalja Evropske unije u homogene grupe prema dostignutom nivou ekoloških performansi poljoprivrede.

Ključne reči: *Zajednička agrarna politika (ZAP), ekološke performanse, Evropska Unija*

4 Master Ivana Ilić, Univerzitet u Nišu, Ekonomski fakultet, Trg kralja Aleksandra Ujedinitelja br. 11, Niš, Srbija, Telefon: +381 64 57 34 347, E-mail: ivanica1404@yahoo.com

5 Bojan Krstić, redovni profesor, Univerzitet u Nišu, Ekonomski fakultet, Trg kralja Aleksandra Ujedinitelja 11, Niš, Srbija, Telefon: +381 18 528 685, E-mail: bojan.krstic@eknfak.ni.ac.rs

6 Sonja Jovanović, vanredni profesor, Univerzitet u Nišu, Ekonomski fakultet, Trg kralja Aleksandra Ujedinitelja 11, Niš, Srbija, Telefon: +381 18 528 655, E-mail: sonja.jovanovic@eknfak.ni.ac.rs

**PROFITABILITY OF RASPBERRY PRODUCTION ON HOLDINGS IN
THE TERRITORY OF ARILJE¹***Nataša Kljajić², Jonel Subić³, Zorica Sredojević⁴***Abstract**

Raspberry is the most important kind of berries and specific in many of its characteristics - biological properties, economic importance, agro-ecological, technological and organizational requirements, the market value of the product, as well as very high interdependence and correlation between the individual phases of the reproductive cycle. Due to its extremely pleasant smell and taste and high nutritional value, raspberry represents a very esteemed and sought fruit which has a high price in the world market and is very suitable for processing. In addition to financial effect, the cultivation of raspberries enables recruitment of labour force, which is in our economic situation of great socio-economic importance, especially in the mountainous regions of Serbia. Based on real data examples, this paper analyzes the economic profitability of this production. Investments in the establishment and cultivation of a raspberry plantation under irrigation amount to 12.140 €/ha. In the production of raspberries a very favourable annual financial result (profit) in the amount of 9300 €/ha is achieved, production is very cost-effective, accumulation is significant (about 77%) and return on equity is in the second year of exploitation. The established economic and financial results show that the production of raspberries is very profitable.

Key words: investment, raspberry, production, profitability.

JEL: J32, Q12, Q15.

1 This paper work is result of the project III – 46006 Sustainable agriculture and rural development in terms of the Republic of Serbia strategic goals realization within the Danube Region, 179028-Rural labor markets and rural economies Serbia - diversification of income and poverty reduction; and 46009-Improvement and development of hygienic and technological procedures in the production of foodstuffs of animal origin in order to obtain high-quality and safe products competitive on the world market, finance by Ministry of Education, Science and Technological Development of the Republic of Serbia.

2 Nataša Kljajić Ph.D., Research Associate, Institute of Agricultural Economics, Belgrade, Volgina Street no. 15, 11060 Belgrade, Phone: +381 11 69 72 858; E-mail: natasa_k@iep.bg.ac.rs

3 Jonel Subić Ph.D., Senior Research Fellow, Institute of Agricultural Economics, Belgrade, Volgina Street no. 15, 11060 Belgrade, Phone: +381 11 69 72 858; E-mail: natasa_k@iep.bg.ac.rs

4 Zorica Sredojević Ph.D., Full Professor, University of Belgrade-Faculty of Agriculture, Institute of Agroecology, Nemanjina Street no. 6, 11080 Belgrade Zemun, Phone: +381 11 44 13 297; E-mail: zokas@agrif.bg.ac.rs

Introduction

There are over 3.8 million hectares of agricultural land in Serbia, out of which 3.4 million hectares (89%) is arable land. Orchards are spread over an area of 164,062 hectares and account for 4.7% of the total utilized agricultural area (Statistical Office of the Republic of Serbia, 2017). With regard to fruit production, the production of berries (strawberries, raspberries, blackberries, blueberries, etc.) is of the greatest importance for the economy of our country, and among them, raspberry production has the leading position (Galić et al., 2014). In Serbia, raspberry (*Rubus idaeus* L) is grown on an area of 11,041 ha which is actually 6.7% of the total area under orchards in our country, or 0.3% of the total utilized agricultural area. With such small areas planted with raspberries around 200 million euro can be annually generated in revenue in the Republic of Serbia (Cecić et al., 2007). The economic importance of raspberry is determined by several major factors: high and varied use-value of the fruit; a relatively high rate of return in favourable agro-ecological conditions; high merchantability of the product; additional employment of labour force and an indirect impact on the overall socio-economic development; production of honey made from raspberries etc. (Petrovic, Milosevic 2002). It is in the interest of both producers and processors to retain as high share of “rolend” raspberry (the first Class) when freezing it as possible, as it achieves the highest price in the international market. Some major raspberry producers, besides plantations, own cold storage facilities (mini cold storage facilities) for processing, thus rounding off the production cycle with frozen raspberry as a final product. Raspberry producers can successfully develop by joining (connecting to) a cluster and thus maintain the leading position in the global market, but only if a number of assumptions are fulfilled, some of which are: efficiently organized raspberry market chain through vertical and horizontal integration of all stakeholders in this sector; strengthening of specialized cooperatives and associations of raspberry producers; joining a cluster of manufacturers of other berries; a greater role of innovation, scientific knowledge and research and development in the production, processing, packaging, logistics, export of raspberries and the like (Kljajić, 2012; Sredojević et al., 2013).

The research presented in this paper is the economic analysis of growing raspberries on family-owned farms, with a starting hypothesis that the production of raspberries in Serbia provides a relatively secure income for farmers. Therefore, the main objective of this research is to determine the profitability of the production from the viewpoint of the producer (cultivator) on the basis of investments and financial results achieved per unit area, in the representative raspberry growing area in Serbia (ie. Arilje).

Materials and methods

Multiple sources were used for the research in this paper. Current state and trends in the production of raspberry in Serbia and in the world are perceived on the basis of statistical data downloaded from websites and available statistical publications. Economic analysis and financial indicators of raspberry production per unit area were made on the basis of actual data from practice in the region of Arilje. The established parameters are the investment amount during the two-year cultivation period, average annual financial result in regular production, the rate of capital accumulation and the payback period. The results are displayed graphically

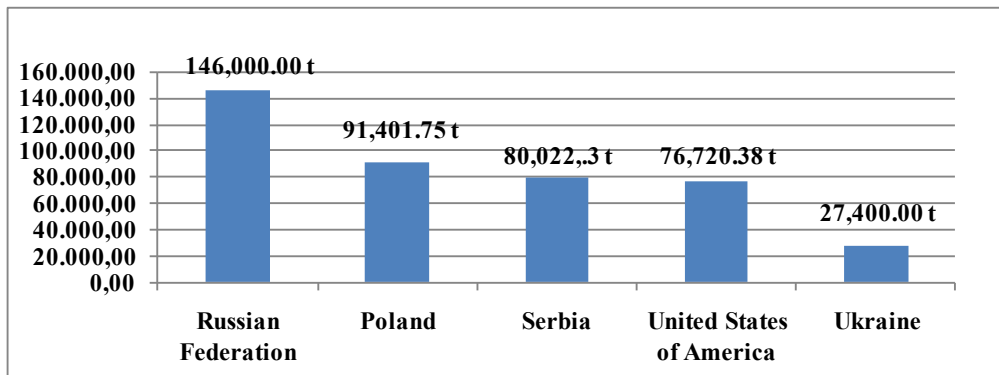
and in tabular form, and the profitability score is based on the criteria for certain indicators.

Research results and discussion

The state of raspberry production in the world and in Serbia

Raspberry is one of the most profitable fruit products. The economic importance of its production is reflected in the high level of merchandising, competitiveness and increasing demand for frozen raspberries in the market of the European Union. Factors that contribute to it are the long tradition of production and specific ecological conditions of the area with specific geomorphologic and pedological features and microclimatic conditions in which Serbian raspberry is grown. The Republic of Serbia is one of the world’s leading producers of raspberries. During the period 2006 - 2015 average annual yield of raspberry production in Serbia amounted to around 80,000 t, according to which Serbia is the third largest producer of raspberries in the world after the Russian Federation and Poland. Other top raspberry producing countries include the United States and Ukraine (Graph 1).

Graph 1. Production of raspberries in leading countries (producers) in the world, 2006-2014



Source: <http://faostat3.fao.org/browse/Q/QC/E>

When observing the areas under raspberry plantations, the total production volume and average yield of raspberry in Serbia in the period 2006-2015, mild oscillations per year can be noticed (Table 1). The largest area under this production was in 2011 (15,354 ha), when the production volume increased by 12.45% compared to 2006. Despite smaller areas under raspberry plantations in 2015 compared to 2006, the average yield increased from 5.3 t/ha to 6 t/ha (Kljajić et al., 2016). This is justified by the fact that in practice old poorly productive plantings are removed and new plantations with productive varieties of raspberry are cultivated.

Table 1. Surface area, production and average yield of raspberry in the Republic of Serbia, 2006-2015

Year	The Republic of Serbia					
	Area harvested		Total production		Average yield	
	(ha)	Index (2006=100)	ton	Index (2006=100)	(t/ha)	Index (2006=100)
2006	15,024	100.00	79,680	100.00	5.3	100.00
2007	14,496	96.48	76,991	96.62	5.3	100.00
2008	14,680	97.71	84,299	105.79	5.7	107.54
2009	14,957	99.55	86,961	109.14	5.8	109.43
2010	15,174	100.99	83,870	105.26	5.5	103.77
2011	15,354	102.19	89,602	112.45	5.8	109.43
2012	11,996	79.84	70,320	88.25	5.9	111.32
2013	12,024	80.03	68,458	85.92	5.7	107.54
2014	11,040	73.48	61,715	77.45	5.6	105.66
2015	11,041	73.48	66,176	83.05	6.0	113.20

Source: SORS, *Statistical Yearbook of the Republic of Serbia, 2007-2016*

In our country, raspberry is an important export product and the largest quantities are exported to the European Union. Benefits of exports to EU countries are primarily due to their deficiency in raspberry and a relatively high living standard that enables a significant level of demand for raspberry as an exclusive and healthy fruit. Over 90% of produced quantity is frozen and exported - in the form of rolend, grits and blocks, while the remainder is sold as fresh fruit or is processes in raspberry concentrates (Paraušić, Simeunović, 2016). About 60% to 70% of domestic raspberry exports are realized by the members of Business Association of Serbian cold storage companies and almost all cold storage companies - members of the Association possess HACCP standards and other standards required by the global market (Kljajić et al., 2013a).

Table 2 provides an overview of raspberry exports by country of import in the period 2013-2015. The largest quantities of frozen raspberry were exported to Germany, a total of 77,128 t in three years, and large quantities were exported to France, Belgium, USA, Great Britain, Sweden as well. The realized average value of exports during the three year period amounted to 230,607 USD.

Table 2. Raspberry export from Serbia by country of import in the period 2013-2015

Raspberry (frozen, no sugar)	Quantity, t			Value, thousands of USD		
	2013	2014	2015	2013	2014	2015
Germany	22,447	24,122	30,559	68,579	78,930	87,007
France	16,215	17,058	21,443	43,781	51,276	56,270
Belgium	7,087	7,276	8,397	24,412	25,045	25,513
USA	1,304	3,554	4,683	4,938	12,733	16,116
Great Britain	1,734	2,296	3,894	5,924	7,124	12,466
Sweden	2,680	3,420	3,162	9,122	12,280	9,626

Other countries	9,951	15,527	21,577	30,602	49,128	60,949
Total:	61,417	73,253	93,714	187,358	236,518	267,945

Source: SORS, 2017, *Statistical Yearbook of the Republic of Serbia, 2016*

The western part of central Serbia is the most important production region where extensive raspberry production is concentrated on a small area famous for its raspberry plantations. The largest and most famous raspberry plantations in Serbia are in: Arilje-Požega region (including Moravica and Dragacevo area) and Valjevo region. The greatest production of raspberry is concentrated in the municipalities of Arilje, Bajina Basta, Brus, Valjevo, Guca, Kosjeric, Krupanj, Ivanjica and Mionica with predominantly small farms relying on human labour.

In these areas indigenous species of raspberry prevails with a variety of types that represent a wealth of genetic resources for this type of fruit. It is of great importance that this indigenous material has an outstanding adaptability to soil and climatic conditions of the environment in which it is located. Various genotypes have some significant characteristics that stand out, such as expressed aroma, specific taste, dietetic and technological value, curative properties and so on (Milivojević et. al., 2005, Sredojević et al., 2015).

Raspberry plantations in the municipality of Arilje cover an area of 1226.05 ha (SORS, 2017, Census of Agriculture, 2012), where an average of 15,000 t of raspberry is produced annually (from 13,500 to 16,500 t). About 15,000 t of raspberry is frozen, processed and exported from the cold storage plants on the territory of the municipality annually.

Raspberry is grown throughout the territory of this municipality and over 95% is grown on family farms, on plots of about 0.3 ha on average (Kljajić, 2014). As a labour-intensive culture it has a major impact on additional employment (<http://arilje.org.rs/>). Raspberry production in Arilje accounts for 19.5% of the total production of raspberries in Serbia. Raspberry production in Zlatibor region covers an area of 3,893 ha, and in the region of Sumadija and Western Serbia 10,513 ha (SORS, 2017, Census of Agriculture, 2012).

Investments in establishing raspberry plantations

Investments in raspberry production are as specific as the production itself owing to the influence of climatic factors, the discrepancy between the production time and working hours, the biological nature of certain working processes and the like. Biological processes, due to their cyclical and seasonal character, have impact on the realization of investments in certain periods of the year (Sredojević et al., 2013; Galić et al., 2014).

Investments in establishing raspberry plantation on a family farm are presented in Table 4. The model is made according to the empirical input-output data received from the producers, experimental results and research (Kljajić, 2012, Kljajić et al. 2013b). Initial assumptions in preparing the economic model of establishing a plantation are as follows:

- suitable climatic and pedological conditions for growing raspberries;

- planting the entire surface area of 1 ha at once;
- the manufacturer has the machinery necessary for the production of raspberries (walk-behind tractor, trailers, spraying accessories, etc.);
- the manufacturer can provide the necessary labour force during the “rush hours” by hiring temporary (seasonal) workers;
- irrigation system is adapted to the plot and the plantation, and its value is taken according to the real average value on the market; raspberry variety “Willamette” is cultivated in standard (conventional) system of vertical row spacing, and the plantation is raised with 2.50 x 0.25 m between-row and in-row spacing; the number of seedlings needed for an area of 1 ha with the required plant spacing is 16,000;
- seedling purchase price is 0.25 €; growing period is two years and “small yield” or “low yield” appears in the second year after planting;
- calculative interest rate is 8%; placement is safe for the planned volume of raspberry production; purchase (sale) price of raspberries is 1.7 €/kg.

Table 3. Investments in raising 1 ha of raspberry (*Area: 1ha; Planting system: Row spacing: 16,000 plants/ha*)

Number	Indicators	The year of plantation establishment (m)			Total (€)
		0	1.	2.	
1	Material	4,000.00	680.00	720.00	5,400.00
2	Labour force	330.00	320.00	240.00	890.00
3	Machine work	250.00	210.00	180.00	640.00
4	Investment in irrigation	-	3,200.00	-	3,200.00
5	Project, supervision and control	220.00	240.00	190.00	650.00
6	Construction of additional facilities, roads, etc.	160.00	140.00	210.00	510.00
I	Total investments	4,960.00	4,790.00	1,540.00	11,290.00
II	The value of “small” yield	-	-	358.00	358.00
III	Adjusted investments (I-II)	4,960.00	4,790.00	1,182.00	10,932.00
IV	The discount factor (1,08 ^m)	1.1664	1.0800	1.0000	-
V	Investments at the beginning of plantation exploitation(A ₀)	5,785.00	5,173.00	1,182.00	12,140.00

Source: Kljajić, 2012.

According to the analysis in Table 3, the total amount of investments along with all the accompanying interest rates (Milojevic, Zekic, 2015), at the end of the period of establishing a raspberry plantation (i.e. at the end of the second year) amounts to 12,140.00 €/ha.

In the previous period in the region of Arilje raspberry production was observed on small family farms where irrigation systems are being introduced. Drip irrigation is becoming a regular agromeliorative measure in the process of raspberry production in this area. Use of irrigation, limited to smaller areas in private hands, gave positive results in terms of high and uniform yield of quality raspberry (Cecić et al., 2007; Gajic et al., 2013).

Based on empirical data, and for the purposes of this study, calculation of investment in establishing a raspberry plantation was made as well as calculation of raspberry production at regular production. Raspberry plantation as an investment should be realized in a form that will ensure the maximum efficiency of exploitation, i.e. as high level of benefit per unit of invested funds as possible. The methods, through which the economic efficiency of investment is expressed in agricultural holdings, hold an important place not only in agriculture but also in the organization of sustainable development of a company at micro level (Subić, 2010).

Raspberry production costs

Raspberry production is characterized by *labour-intensive and seasonal character*. Production takes place mainly on family farms where almost all members of the household are engaged in agricultural activity. During the picking season, seasonal labour force is engaged. Raspberry picking is done repeatedly and lasts from three to four weeks because raspberry fruits do not ripen simultaneously.

Gradual fruit ripening raises the harvest cost, but it enables supplying fresh raspberries to the market. Further analysis, based on the technology map (process planning) for one production cycle, defined total production costs per hectare of raspberries (Table 4).

Considering the fact that in this area raspberry is still harvested by hand, labour costs have a higher share in the structure of the total cost (58%).

Table 4. Costs of exploitation of plantations at regular raspberry production

Type of costs	Unit of measure (u. m.)	Quantity (size)	Price (€/u.m)	Amount (€/ha)
1. Material costs				
Manure	t	15	20.00	300.00
NPK (15:15:15)	kg	700	0.80	560.00
KAN (27 % N)	kg	400	0.60	240.00
Trellis binder	kg	10	5.00	50.00
Pesticides	kg	-	-	180.00
<i>Total (1.):</i>	-	-	-	1,330.00
2. Cost of services (machine work)				
Transport and distribution of manure	hour/tractor	6	35.00	210.00
Transport and distribution of mineral fertilizers	hour/tractor	2	35.00	70.00
Transport of packaging	hour/tractor	1	20.00	20.00

Type of costs	Unit of measure (u. m.)	Quantity (size)	Price (€/u.m)	Amount (€/ha)
Interred processing (4x)	hour/walk behind tractor	30	5.00	600.00
Phytosanitary protection (4x)	hour/walk behind tractor	30	5.00	600.00
Transport of fruit during the harvest	hour/tractor	40	20.00	800.00
Autumn plowing	hour/tractor	1	50.00	50.00
<i>Total (2.):</i>				2,350.00
3. Labour costs				
Loading and unloading of manure	working day	5	15.00	75.00
Loading and unloading of mineral fertilizers				
	working day	5	15.00	75.00
Sprout tying and wire tightening	working day	5	15.00	75.00
Irrigation	working day	50	15.00	750.00
Removal of young shoots (3x)	working day	10	15.00	450.00
Hand hoeing following the row direction (2x)	working day	20	15.00	600.00
Harvest	working day x no.of workers	195	15.00	2.925.00
Pruning and removal of old shoots	working day	10	15.00	150.00
<i>Total (3.):</i>	-	-	-	5,100.00
4. Other costs				620.00
5. Total costs (1.+2.+3.+4.):				9,400.00

Source: Author's calculation based on the calculation data of raspberry production on a family holding

Total costs which include material costs, cost of services or machine work, labour costs and other costs, at regular raspberry production amount to 9,400 €/ha.

Indicators of profitability of raspberry production

The value of production for one production cycle is determined on the basis of average yields achieved in practice on farms in the region of Arilje as well as the purchase price. Economic justification of raspberry production on a farm is assessed by using the static methods. Several selected economic indicators were determined: coefficient of efficiency, financial result, raspberry production cost per 1 kg, the rate of accumulation and the payback period.

For the purpose of analysis, the data for the year 2016 were taken as the representative economic parameters, and according to the relevant criteria, the profitability of raspberry production was assessed (Table 5).

Table 5. Indicators of profitability of raspberry production on a family holding

Ekonomic indicators of raspberry production	Amount
<i>I. Investments during the period of raising a plantation</i>	12,140.00 €
<i>2. Indicators at regular raspberry production</i>	
<i>A. Value of production (11.000 kg * 1,7 €/kg)</i>	18,700,00 €
<i>B. Total costs</i>	9,400.00 €
<i>C. Financial result - profit / loss (A. - B.)</i>	9,300.00 €
<i>D. Raspberry production cost per 1 kg (B./11.000 kg)</i>	0.85 €
<i>E. Coefficient of efficiency (A./B.)</i>	1.98
<i>F. Rate of accumulation (C./I.)</i>	76.60 %
<i>G. Payback period (I./C.)</i>	1.30 year

Source: Author's calculation based on the calculation data of raspberry production on a family holding

The main parameters for determining the achieved production are the capacity (surface area) and intensity of production. In the analyzed year average raspberry yield in the region of Arilje was 11 t/ha, and the average purchase price of raspberries 1.7 €/kg (according to Innovation Center for Agriculture Arilje), which makes the production value of 18.7000 €/ha. The difference between the value of production and total costs generates a positive financial result (profit) in the amount of 9300 €/ha. The production cost is 0.85 €/kg, which is much lower compared to sales (purchase) price, i.e. 1.7 €/kg, which is beneficial to producers of raspberries. Coefficient of efficiency in the amount of 1.98 is well above the minimum amount of 1, and the rate of accumulation shows that for every 100 Euro of invested capital about 77 euros are accumulated. The payback period of the capital invested in the establishment and cultivation of raspberries, is as early as in the second year of exploitation, i.e. in the second year of raspberry production. Based on this analysis and established indicators regarding all the criteria, it can be concluded that raspberry production is economically justified and very profitable.

Raspberry production has certain disadvantages because of high sensitivity of fruits, low durability, and low transportability. It is estimated that almost 40% of the yield is lost during the transportation period between the farm and the final consumer. A large part of this loss occurs due to poor post-harvest handling, including the transport. By reducing the amount of hand contact and applying appropriate packaging techniques, the percentage of loss will be reduced too.

Since the fruit is sensitive, its storage in the fresh state is difficult and short-term. After the harvest, raspberry has to be cooled and deep frozen, which makes it highly dependent on processing. Therefore, the proximity to processing facilities is very important as well as quick and organized transport in order to prevent loss of quality (Sarić, 2009). Fresh raspberry fruit can be stored for 10-14 days in cold storage at -0.6 ° to 0° C and at relative humidity of 85-90%. Today, raspberry is increasingly frozen as individual quick frozen fruit or "rolend" raspberry, and thus prepared it is kept until use. Deep frozen raspberry can be stored for a long time at -18 to -20 ° C. These fruits must be used shortly after defrosting.

Conclusion

According to the established economic indicators, raspberry production on a farm in the region of Arilje is economically viable and highly profitable. Raspberry production provides an average income of 9,300 €/ha. The coefficient of efficiency in raspberry production is 1.98, which means that the production is cost-effective, or acceptable. Rate of accumulation is about 77% and payback period is as early as in the second year of exploitation. By observing the results of the economic analysis of raspberry production it may be concluded that this production achieves good profitability. The level of profitability that is realized through production depends on the achieved volume of production and purchase price, but can be increased by reducing production costs, increasing the yield per unit area, as well as better organization of production and distribution (Mihajlovic, 2014). This production requires greater involvement of labour force, which contributes to the employment of local population, consequently providing positive social effects.

Literature

1. Cecić N., Subić J., Vuković P. (2007): *Proizvodnja maline u funkciji ruralnog razvoja*, Tematski zbornik-Multifunkcionalna poljoprivreda i ruralni razvoj u Republici Srpskoj, Poljoprivredni fakultet Istočno Sarajevo, Institut za ekonomiku poljoprivrede, Beograd, Balkanska asocijacija za životnu sredinu (B.EN.A), Solun, pp. 379-386
2. Gajić B., Tomić Z., Sredojević Z. (2013): *A simple method estimates and economic indicators of photovoltaic system for drip irrigation*, Journal Economic of Agriculture. Year 60, No. 2, pp. 223-237.
3. Galić D., Milić D., Sredojević Z. (2014): *Financial results achieved in short-day strawberry production*, Economics of Agriculture, Year 61, No.4 (829-1088) 2014, Belgrade, The Balkan Scientific Association of Agrarian Economists, Belgrade, Institute of Agricultural Economics, Belgrade, Academy of Economic Studies, Bucharest, pp. 851-859 <http://ea.bg.ac.rs>
4. <http://arilje.org.rs/privreda/poljoprivreda.html> (Date of access, 02/07/2017)
5. <http://faostat3.fao.org/browse/Q/QC/E> (Date of access, 02/02/2017)
6. Kljajić N. (2012): *Ekonomska efikasnost investicija u različitim uslovima proizvodnje maline*, Doktorska disertacija, Poljoprivredni fakultet, Novi Sad.
7. Kljajić N., Vuković P., Arsić S. (2013a): *Tendencies related to the production of raspberries in the Republic of Serbia*, Journal Economic of Agriculture, Year 60, No. 1, pp. 39-48.
8. Kljajić N., Vuković P., Arsić S. (2013b): *Current Situation in Irrigation in the Republic of Serbia*, Charperter 7, Sustainable Technologies, Policies, and Constraints in the Green Economy, pp. 123-139. <http://www.igi-global.com> <http://resources.igi-global.com/production/proofs/Jean-Vasile/EditorProof.pdf>

9. Kljajić N. (2014): *Efikasnost investicija u proizvodnji maline*, Monografija, Institut za ekonomiku poljoprivrede Beograd, pp. 197.
10. Kljajić N., Paraušić V., Rodić A. (2016): *Tehno-economic feasibility use of portable solar irrigation systems*, 152nd EAEE, Thematic proceedings-Emerging technologies and the development of agriculture, Novi Sad, pp. 36-57.
11. Mihajlovic, M. (2014): *Menadzment znanja kao faktor povecanja efikasnosti organizacije*, Odtor, Belgrade, Serbia, no. 09, pp. 33-36.
12. Milivojević J., Gajić B., Bošnjaković G., Cević N., Matović G. (2005): *Optimizacija režima navodnjavanja zemljišta pod zasadima maline u različitim geomorfo-pedomikroklimatskim uslovima ariljsko-požeškog malinogorja*, Projekat tehnološkog razvoja u oblasti biotehnologije, Završni izveštaj, pp. 32.
13. Milojević, I., Zekić, M. (2015): *Organizaciona struktura preduzeca kao pretpostavka konsolidacije bilansa*, Odtor, Belgrade, Serbia, no. 12, pp. 22-28.
14. Petrović S., Milošević T. (2002): *Malina-tehnologija i organizacija proizvodnje*, Agronomski fakultet, Čačak. pp. 215-219.
15. Paraušić V., Simeunović I. (2016): *Market Analysis of Serbia's Raspberry Sector and Cluster Development Initiatives*, Economics of Agriculture, 63(4), 1417-1432
16. Sarić R., Subić J., Roljević S. (2009): *Malina kao izvozni brend Srbije*, Ekonomske teme. Godina XLVII. Broj 3. pp. 171-178.
17. Sredojević Z., Kljajić N., Popović N. (2013): *Investing in raspberry as a opportunity of sustainable development of rural areas of western Serbia*, Buletinul Revista categoria B+CNCSIS, Seria Stiinte Economice, Petrol-Gaze din Ploiesti, 1/201, II (LXV), http://www.upg-bulletin-se.ro/archive/20131/6.Sredojevic_Kljajic_Popovic.pdf
18. Sredojević Z., Vlahović B., Maksimović A. (2015): *Ekonomski pokazatelji različitih načina proizvodnje maline na porodičnom gazdinstvu*, Agroekonomika, ISSN 0350-5928 (Print) ISSN 2335-0776 (Online) Godina 44. Broj 66. pp. 114-124 http://agroekonomika.rs/images/arhiva/Agroekonomika_66.pdf
19. Statistički godišnjak Republike Srbije, 2015. god., RZS, 2017.
20. Subić J. (2010): *Specifičnost procesa investiranja u poljoprivredi*, Institut za ekonomiku poljoprivrede, Beograd, ISBN 978-86-82121-87-9, pp. 192

PROFITABILNOST PROIZVODNJE MALINE NA GAZDINSTVIMA NA PODRUČJU ARILJA⁵

Nataša Kljajić⁶, Jonel Subić⁷, Zorica Sredojević⁸

Apstrakt

Malina je najznačajnija vrsta jagodastog voća i specifična po mnogim svojim karakteristikama - biološkim osobinama, ekonomskom značaju, agro-ekološkim, tehnološko-organizacionim zahtevima, tržišnoj vrednosti proizvoda, kao i vrlo visokoj međuzavisnosti i uslovljenosti između pojedinih faza reprodukcionog ciklusa. Zahvaljujući svom izuzetno prijatnom mirisu i ukusu i velikoj nutritivnoj vrednosti, malina predstavlja jako cenjeno i traženo voće koje na svetskom tržištu ima visoku cenu i veoma je zahvalna za preradu. Pored finansijskog efekta, gajenje maline omogućava uposlenje radne snage, što je u našoj ekonomskoj situaciji od velike socio-ekonomske važnosti, naročito u brdskim rejonima Srbije. Na bazi realnih podataka iz prakse, u radu je ekonomska analiza profitabilnosti ove proizvodnje. Utvrđena su investiciona ulaganja u zasnivanje i uzgoj maline u uslovima navodnjavanja u iznosu od 12.140 €/ha. U proizvodnji maline se godišnje postiže veoma povoljan finansijski rezultat (dobit) u iznosu od 9.300 €/ha, jako je ekonomična proizvodnja, značajna akumulativnost (oko 77%) i povraćaj kapitala već u drugoj godini eksploatacije zasada. Utvrđeni ekonomski i finansijski rezultati u pokazuju da je za uzgajivače, proizvodnja maline jako profitabilna.

Ključne reči: *investiciono ulaganje, malina, proizvodnja, profitabilnost*

-
- 5 Rad je deo istraživanja na projektima III-46006 Održiva poljoprivreda i ruralni razvoj Dunavskog regiona u smislu realizacije strateških ciljeva Srbije; 31058 - Sušenje voća i povrća iz integralne i organske proizvodnje kombinovanom tehnologijom; 179028 – Ruralno tržište rada i ruralna ekonomija Srbije - diverzifikacija dohotka i smanjenje siromaštva; i 46009 – Unapređenje i razvoj higijenskih i tehnoloških postupaka u proizvodnji namirnica životinjskog porekla u cilju dobijanja kvalitetnih i bezbednih proizvoda konkurentnih na svetskom tržištu, koje finansira Ministarstvo prosvete, nauke i tehnološkog razvoja Republike Srbije, u period 2011-2017
 - 6 Dr Nataša Kljajić, naučni saradnik, Institut za ekonomiku poljoprivrede, Beograd, Volgina Ulica br. 15, 11060 Beograd, Telefon: +381 11 69 72 858; E-mail: natasa_k@iep.bg.ac.rs
 - 7 Dr Jonel Subić, viši naučni saradnik, Institut za ekonomiku poljoprivrede, Beograd, Volgina Ulica br. 15, 11060 Beograd, Telefon: +381 11 69 72 858; E-mail: natasa_k@iep.bg.ac.rs
 - 8 Dr Zorica Sredojević, redovni profesor, Univerzitet u Beogradu-Poljoprivredni fakultet, Institut za agroeko-nomiju, Nemanjina Ulica br. 6, 11080 Beograd-Zemun, Telefon: +381 11 44 13 297; E-mail: zokas@agrif.bg.ac.rs

MULTI-ATTRIBUTE ANALYSIS OF ORCHARD ACCORDING TO THE INTEGRATED PRODUCTION CONCEPT

Aleksandar Maksimović¹, Zoran Grgić², Ferhat Čejvanović³

Summary

Integrated fruit production (IFP) is an economical, high-quality fruit production which prioritizes ecologically acceptable means of production, which minimize side-effects aiming to increase environment conservation and human health.

Following the market demands and increasing production standards, integrated production imposes itself, which is to enable lucrativeness, market competition and ecological acceptability of agricultural products.

Introducing and implementing multi-criteria model of decision-making is based on DEXi method (multi-attribute analysis). This method makes selection of the most adequate fruit sort for initiating fruit production. This model of decision-making is based on opinions of experts from the field of integrated production. The main criterion in evaluating IFP according to DEXi and expert system are: economic, technological, ecological and socio-political.

The result of multi-criteria expert system DEXi have shown that the plum fruit sort yields the best results according to integrated production concept and can be recommended as the first planting alternative. The second alternative recommends apple while the third one recommends pear.

Key words: *integrated fruit production, expert decision-making, DEXi method, fruit sort selection, plum, apple, pear.*

JEL: *Q10, C69.*

-
- 1 Aleksandar Maksimović Ph.D. candidate, Lecturer, College of Computer Science and Business Communications eMPIRICA, Bulevara mira no. 4, Brcko district, Bosnia and Herzegovina, Phone: +387 49 230 111, E-mail: a.maksimovic22@gmail.com.
 - 2 Zoran Grgić Ph.D., Full professor, Faculty of Agriculture, University of Zagreb, Svetosimunska cesta no. 25, Zagreb, Croatia, Phone: +385 01 239 3760 E-mail: zgrgic@agr.hr.
 - 3 Ferhat Čejvanović Ph.D., Associate Professor, External associate: Faculty of Economics in Tuzla, University of Tuzla, Univerzitetska Street no. 8, Tuzla, Bosnia and Herzegovina and Government of Brcko district, Bulevar mira no. 1, Brcko district, Bosnia and Herzegovina, Phone: +387 35 320 820, E-mail: ferhat.cejvanovic@gmail.com.

Introduction

The territory of Bosnia and Herzegovina has favourable both natural and ecological conditions for intensive fruit production, which allows investment efficiency and competitiveness on market. Despite all of that, today Bosnia and Herzegovina has unorganized fruit production. Problems and limits with fruit production in Bosnia and Herzegovina are the following: inefficiency, inability to measure and monitor costs, lack of production documentation, levels of required knowledge both in terms of production technology and in terms of basic management principles (Galjak, Bojkovic, 2015) and market knowledge, the product placement, unwillingness to adapt in terms of changing the business processes, especially the elders. Domestic market, and especially foreign one, demands consistent quality and supply conduit, as well as certification of products. Implementation of IFP as a generally accepted system of manufacturing can contribute overcoming existing problems when it comes to fruit growing in Brcko District and region, and increase its competitiveness.

Following the market requirements and incensement of standards in terms of manufacturing, integrated manufacturing is being imposed which has to enable economic profitability, competitiveness on the market, and environmental acceptability. Integrated fruit manufacturing is defined as economical manufacturing of high-quality fruit, which gives priority to ecologically safe methods that minimalize unwanted side effects of agricultural chemical substance uses, with goal of improving environment and human health safety (Grahovac et al., 2011).

Choosing which type of fruit is the most economical to plant will be determined using multi-attribute analysis DEXi methods. It helps the user in making a decision about some complex decision problem, in which one should compare good and bad sides of different variants. With this method we'll determine the most economical fruit to plant in Bosnia and Herzegovina, by integral concept.

The main difference of DEXi method to the other multi-criteria decision analysis methods is that this method does not do transformation of linguistic values but uses „if only“ rules (Rozman et al., 2016). The result of this application is the linguistic value and not the numerical one. Due to all this, this method is in advantage to other MCDA methods because it can use various linguistic values and the end result is the same in that value by which the decision edges closer to human way of thinking.

While performing these methods in agriculture, the method that was used the most was the method of analytical hierarchical process (AHP). The examples of the usage of this method when sourcing the variety can be easily located in the following works: (Rozman et al., 2015a; Agha et al., 2012; Van Chuong, 2011; Agha, 2011; Srđević et al., 2004). As opposed to AHP method, the sourcing issues can be described as qualitative usage of non-numerical values and „if only“ rules. This paper shall use qualitative non numerical variables. Therefore, the usage of DEXi method is the logical sequence of events while determining the fruit sort selection. This method is useful for problems that are not fully specified such as the system of arable production which is the typical example of such problems (Rozman et al., 2015b; Pozderek et al., 2015; Tojnko et al., 2011).

Methodology of DEXi analysis method

DEXi Methodology enables the description of hierarchy attributes in conceptual model and rule aggregation between the attributes which is usable with problems of real decision making. (Kontić et al., 2006). DEXi method combines the traditional multi-criteria decision making methodology with the elements of expert system and machine language. (Pavlović et al., 2011). DEXi stands for Decision Expert and it's built on multi-parameter methodology of making a decision DECMAX (DECision MAXing) as well as artificial intelligence usage. DEXi is a methodology for qualitative, multi-criteria decision making modelling and support (Bohanec, Rajković, 1990). Knowledge base doesn't derive from mathematical formulas, but from user's/expert's knowledge. The user is encouraged to discover „space of deciding“ by defining criteria's and qualitatively describing its values. Knowledge is presented in form of decision rules if-then. The distinctive feature of DEXi has given its ability to handle with qualitative variables and linguistically values in a function of finding the most profitable alternative of fruit planting with help of multiple criteria's such as: Economic, Political and Social, Ecological and Technological.

Financial criteria consist of investment costs, Net Present Value and Internal Rate of Return (quantitatively measured criteria). Technological criteria consists of growth technology and ability to store (which represents qualitative criteria), as well as manpower (which can be separated to family work and hired work, and can also be expressed in quantitative values). Market criteria reflect attractively for each fruit and consummation diversity (qualitative criteria). Finally, criteria of conveniently selected location shows ecological state (ground, incline, and ability of spring frost).

Instead of numerical variables, which usually represent traditionally quantitate models, DEXi uses qualitative variables whose values are, in most cases, represented by words and not numbers, such as „small“, „appropriate“, and „inappropriate“.

DEXi principle is made up of three stages (Bohanec, 2003):

- problem identification and criteria determination
- setting of decision-making rules (utility function definition)
- analysis of each alternative.

DEXi is an easy way to create and modify the criteria of wood and edit the measurement scales and decision-making rules. Data entry on variants and variants evaluation is also very simple (Bahovac, Zupan, 2006). The results of evaluation are shown in tabular form, as well as what-if analysis (Stanojevic et al., 2016). Graphical view is also applicable. Structure of the model evaluation criteria in orchard establishing, which was created using the expert system DEXi, is shown in Table 1 together with measurement scales. Values on measurement scale are sorted from worse to better.

Table 1. Qualitative criteria structure for orchard establishment evaluation

Criteria's	Qualitative value criteria - measuring scale
Fruit planting choice	Not acceptable, acceptable, very acceptable
+ -Economic criteria	Insignificant, important, very important
*-Financial criteria	Insignificant, important, very important
*-Investment criteria	Big, medium, low
*-Net present value	Negative, low, high, very high
*-Internal return rate	Negative, low, high, very high
+-Profitability index	Negative, low, high, very high
*-Economic success measurement	Insignificant, important, very important
*-Cost-effectiveness	Negative, low, high, very high
+-Profitability	Negative, low, high, very high
+-Marketing criterion	Insignificant, important, very important
*-Selling possibility	Small, medium, large
*-Export possibility	Small, medium, large
+-Required promotion	Big, medium, low
+ -Socio-political criterion	Insignificant, important, very important
*-Social criteria	Not acceptable, acceptable, very acceptable
*-Life standard improvement	Low, medium, high
*-Fruit grower's knowledge increase	Low, medium, high
+-The habit of growing certain fruits	Unchangeable, changeable, highly variable
+-Political criteria	Not acceptable, acceptable, very acceptable
*- Caring for a particular state fruit production	Non-existing, bad, good, excellent
*- State subsidies	Non-existing, bad, good, excellent
+-Export subsidies	Non-existing, bad, good, excellent
+ -Technical criterion	Insignificant, important, very important
*-Irrigation and drainage	Big, medium, low
*-Growth technology	Big, medium, low
*-Manpower	Big, medium, low
*-Mechanical support	Big, medium, low
+-Storing	Big, medium, low
+ -Ecological criterion	Insignificant, important, very important
*-Pollution impact	Insignificant, important, very important
*-Water	Big, medium, low
*-Ground	Big, medium, low
+-Air	Big, medium, low
*-Manure usage	Insignificant, important, very important
*-Manure	Insignificant, important, very important
+-Fertilizers	High level, medium level, low level
*-Pesticides usage	High level, medium level, low level
+ -Water potentials usage	High level, medium level, low level

Source: Authors' research

Step 1 Problem structure

Structuring the problem occurs in a manner that agricultural entrepreneur wants to establish an orchard. It's necessary to make a decision for specific fruit sort on chosen location.

Step 2 Fruit sort identification

Identification consists of three fruit sorts who have the highest representation in Bosnia & Herzegovina and Brcko district, and those are plum, apple and pear.

Step 3 Financial cost-benefit analysis for each fruit sort

For each fruit sort is carried out a cost-benefit analysis and calculation of basic financial indices net present value and internal return rate for each fruit sort, as already demonstrated in earlier work.

Step 4 Identification of goals and criteria's

Various techniques can be used in order to identify goals and criteria's for analysis. Multi-criteria way of decision making can be good enough to identify goals and criteria's that'll be of use in project evaluation. Multi-criteria decision making treats the problem of a hierarchical structure of evaluation (egg, analysis hierarchy process) decision tree. DEXi methodology is based on criteria formation in decision making tree. For the purposes of analysis of orchard establishment tree of criteria has been developed

Step 5 Utility function definition (rules of decision making) and analysis execution

When each criterion is marked with its value base (stock), access to decision making classification is being done. DEXi methodology uses qualitative values for alternative evaluation decision making. Whole project's utility function consists of partial utility functions which are defined for aggregated criteria's. These utility functions are defined by the decision making rules.

Based on defined rules of decision making we can calculate relative weight of each criterion, which is (in DEXi system) done via method of multiple regressions or machine learning method – in formativeness. In regression every rule-making can be presented as a series of point which are approximated with hyper plane. This means that every qualitative parameter in any rule-making is given an original number through approximation regression equation $y = a_0 + a_1x_1 + \dots + a_nx_n$. Parameter a_0 can be omitted and relative weights are calculated via:

$$w_i = \frac{100a_i}{\sum_{j=1}^n a_j}; i = 1, 2, \dots, n \tag{1}$$

Where: w_i stands for relative weight of criteria i.

A different way to calculate relative weights of each criterion is with in formativeness method, based on formula (Čejvanović, 2007):

$$-\sum p_i \log_2 p_i \tag{2}$$

Where: p_i stands for the like hood of events i.

Once the decision-making rules have been established analyst sets qualitative values for each criterion, responding to every alternative solution. After the entered values, DEXi carries out analyses for each alternative solution. Automatic „what-if,, analysis can be carried out (observing any changes in various „model input parameters“ and their influence on evaluated values)

Results

Orchards establishment rating (utility function) is based on four criteria's: financial, technological, socio-political, and ecological. Relative weight of each criteria isn't equal for all four criteria's and it has different percentage values. Financial criterion is 29%, technological 9%, location convenience criterion is 31% and market criterion is 31% of total relative weight.

Following image presents the criterion results – attributes for three fruit sorts.

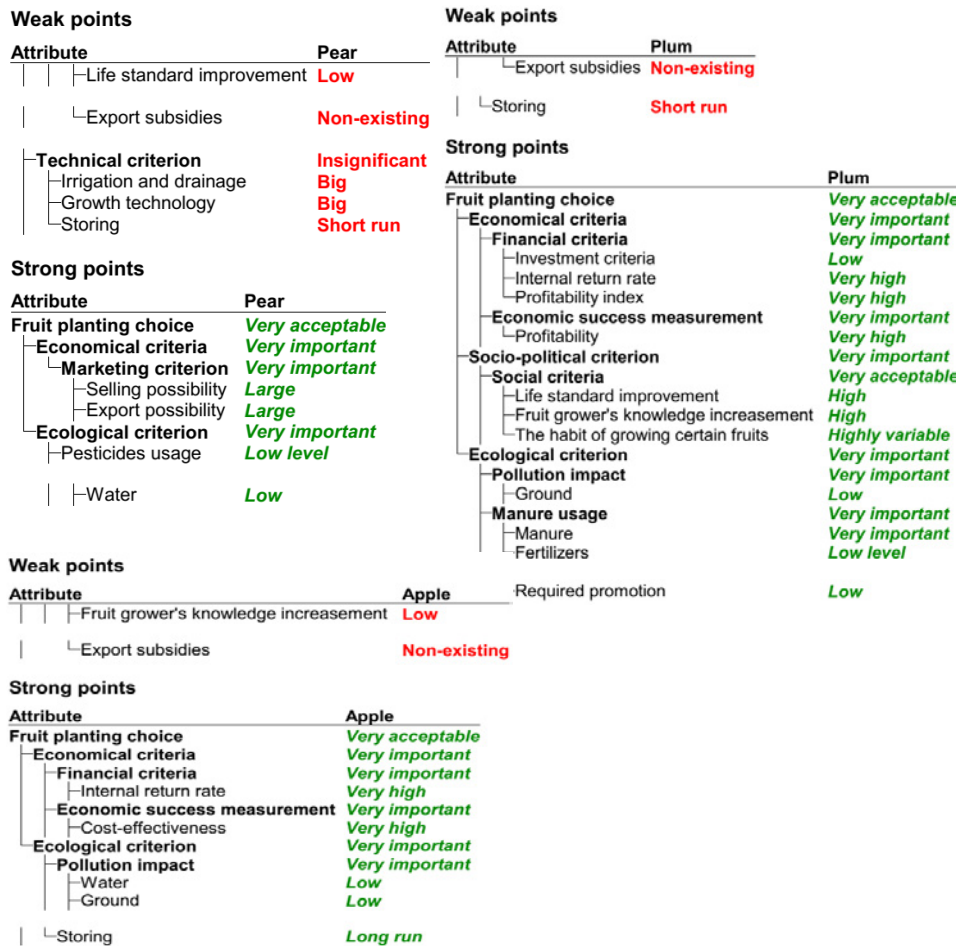
Figure 1. Attributes result for apple plum pear

Attribute	Plum	Pear	Apple
Fruit planting choice	Very acceptable	Very acceptable	Very acceptable
Economical criteria	Very important	Very important	Very important
Financial criteria	Very important	Important	Very important
Investment criteria	Low	Medium	Medium
Net present value	High	Low	High
Internal return rate	Very high	High	Very high
Profitability index	Very high	Low	High
Economic success measurement	Very important	Important	Very important
Cost-effectiveness	High	Low	Very high
Profitability	Very high	High	High
Marketing criterion	Important	Very important	Important
Selling possibility	Medium	Large	Medium
Export possibility	Medium	Large	Medium
Required promotion	Low	Medium	Medium
Socio-political criterion	Very important	Important	Important
Social criteria	Very acceptable	Acceptable	Acceptable
Life standard improvement	High	Low	Medium
Fruit grower's knowledge increase	High	Medium	Low
The habit of growing certain fruits	Highly variable	Changeable	Changeable
Political criteria	Acceptable	Acceptable	Acceptable
Caring for a particular state fruit production	Good	Good	Good
State subsidies	Good	Bad	Bad
Export subsidies	Non-existing	Non-existing	Non-existing
Technical criterion	Important	Insignificant	Important
Irrigation and drainage	Medium	Big	Medium
Growth technology	Medium	Big	Medium
Manpower	Medium	Medium	Medium
Mechanical support	Medium	Medium	Medium
Storing	Short run	Short run	Long run
Ecological criterion	Very important	Very important	Very important
Pollution impact	Very important	Important	Very important
Water	Medium	Low	Low
Ground	Low	Medium	Low
Air	Medium	Medium	Medium
Manure usage	Very important	Important	Important
Manure	Very important	Important	Important
Fertilizers	Low level	Medium level	Medium level
Pesticides usage	Medium level	Low level	Medium level
Water potentials usage	Medium level	Medium level	Medium level

Source: Authors' research

Based on analysis of experts and by DEXi method, weaknesses and strengths for each fruit sort were singled out:

Figure 2. Strengths and weaknesses of apple attribute

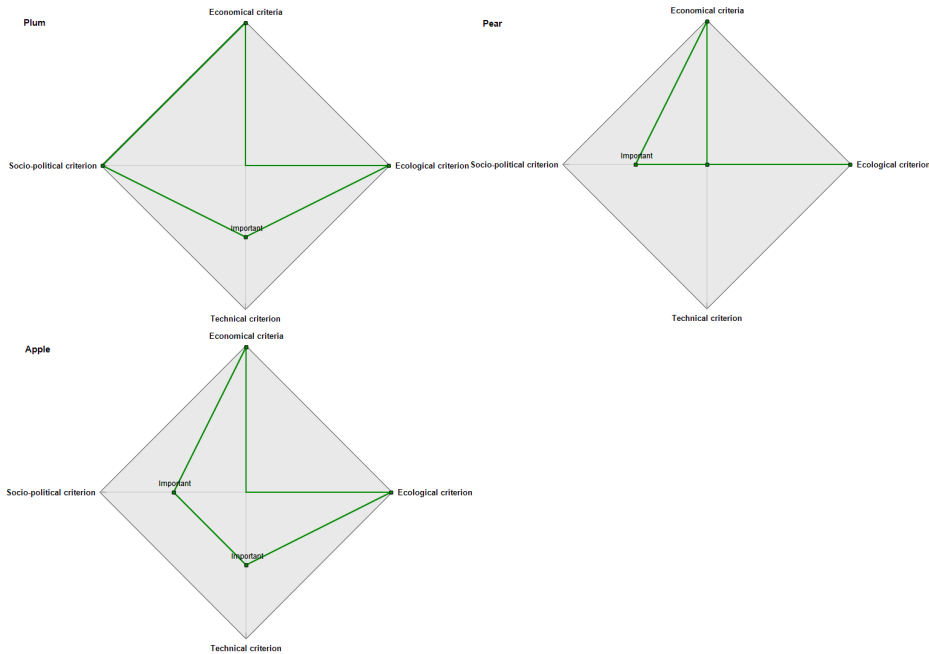


Source: Authors' research

Image shows us that export subvention doesn't exist for apple, plum and pear, and that plum has the most positive attributes compared to other two fruit sorts. Apple has more positive attributes than pear. On the basis of above we can say that the top ranked fruit sort is plum, followed by apple, and then pear (based on expert's rating and DEXi method). This statement could be set aside as recommendation for the future

establishment of orchards. The following image shows the disposition and weight criteria for each fruit sort.

Figure 3. Graphical presentations of results with the DEXi expert system



Source: Authors' research

Based on presented analysis, the best indicator on economic criteria is the plum and apple, while the pear shows lower results. (More about this work is discussed in economic analysis in the context of this work). Socio-political criterion, top predispositions has plum due to often incentive by the government of Brcko District to this fruit sort, next is apple, while pear shows 'not so significant' importance in this criteria compared to plum. Technical criterion implies that the apple and plum has significant requests towards the growth technology while with pear some difficulties occur and it shows the poorest results. The basis of this statement is small number of pear orchards on territory of Brcko District and therefore the technical requirements for this type of production are higher than for the apple and plum production. Ecological criteria shows moderation in all three fruits, though the pear's potential ground contamination is lower comparing to apple and plum, due to lower number of treatments.

Conclusions

Bosnia and Herzegovina has favourable natural conditions for fruit production development. However, Bosnia and Herzegovina does not achieve satisfactory results in fruit production in relation to its conditions. Problems and limits in fruit production to Bosnia and Herzegovina are: non-profitability, measurement inability and cost monitoring, lack of knowledge in terms of basic management principles

and knowledge of market. Implementation of IFP, as a generally accepted system of production, can contribute to overcoming the existing problems with fruit production in Bosnia and Herzegovina, thus increasing its competitiveness. This paper considers the alternatives of fruit sort growing, i.e. which fruit sort is the most profitable, using the multi-criteria expert analysis DEXi. Following criteria were considered through this method: economical, socio-political, ecological and technological. As a result of research with DEXi method it can be concluded that plum shows the best results, therefore it could be recommended as a primary alternative in selection of fruit sort. The second recommended alternative is the apple. Bosnia and Herzegovina, through its amenable ministries of agriculture, should especially emphasize the plum and apple fruit production.

References

1. Agha, S. R. (2011): *A multi-criteria crop planning model based on the "resistive economy" characterizing the situation in Gaza Strip*. 8th International conference on Islamic economy and finance", Doha, Qatar, pp. 1-22.
2. Agha, S. R., Latifa, G.N., Nassar, H.A., Shehada, R.Y., (2012): *Multi Criteria Governmental Crop Planning Problem: an Analytic Hierarchy Approach*. Management, Vol. 2, No. 4, pp. 96-105.
3. Bohanec, M. (2003): *Decision Support, Data Mining and Decision Support*. Academic Publishers, London.
4. Bohanec, M., Rajkovič, V. (1990): *DEX: An Expert System Shell for Decision Support*. Sistemica. Lima, Vol. 1, No. 1, pp. 145-158.
5. Bohanec, M., Rajkovič, V. (1999): *Multi-Attribute Decision Modelling: Industrial Applications of DEX*. Informatica, No. 23, pp. 487-491.
6. Bohanec, M., Zupan, B. (2004): *A function-decomposition method for development of hierarchical multi-attribute decision models*. Decision Support Systems, No. 36, pp. 215-233.
7. Čejvanović, F. (2007): *Ekonomska analiza integralne proizvodnje voća*. Institut za ekonomiku poljoprivrede, Beograd.
8. Galjak, I., Bojkovic, C. (2015): *Istorijski aspekti razvoja trzista kapitala i korporativnog upravljanja*, Oditor, Belgrade, Serbia, no. 10, pp. 10-16.
9. Grahovac, M., Indić, D., Tanović, B., Lazić, S., Vuković, S., Hrustić, J. Gvozdenac S. (2011): *Integralna zaštita jabuka od prouzrokovala truleži u skladištima*. Pesticidi i fitomedicina, Vol. 26, No. 4, pp. 289-299.
10. Kontić B, Bohanec M, Urbančić T, (2006) An experiment in participative environmental decision making. The Environmentalist, Vol. 26, No. 1, pp. 5-15.
11. Kontić, B., Bohanec M. (1998): *Izbor lokacije za odlagalište NSRAO, Prikaz uporabe odločitvenega pristopa DECMAC in računalniškega programa DEX*, Institut Jožef Stefan.
12. Pavlović, M., Cerenaka, A., Pavlović, V., Rozman, Č., Pažek, K., Bohanec, M. (2011): *Development of DEX-HOP multi-attribute decision model for preliminary hop hybrids assessment*. Computers and Electronics in Agriculture, Vol. 75, No. 1, pp.

181-189.

13. Pozdrec, S., Bavec, M., Rozman, Č., Vinčec, J., Pažek, K. (2015): *Multi-Criteria Assessment of Vegetable Production Business Alternatives*. Organizacija, Vol. 48, No. 3, pp. 203-213.

14. Rozman, Č., Grgić, Z., Maksimović, A., Čejvanović, F., Puška, A., Šakić Bobić, B. (2016): *Multiple-criteria approach of evaluation of milk farm models in Bosnia and Herzegovina*. Mljekarstvo, Vol. 66, No. 3, pp. 206-214.

15. Rozman, Č., Hühner, M., Kolenko, M., Tojnko, S., Unuk, T., Pažek, K. (2015a): *Apple Variety Assessment with Analytical Hierarchy Process*. Erwerbs-Obstbau, Vol. 57, No. 2, pp. 97-104.

16. Rozman, Č., Pažek, K., Pavlovič, V., Bohanec, M., Pavlovič, M. (2015b): *Application of Multi Criteria DEX Model in Hop Breeding*. 13th International Symposium on Operational Research SOR'15, pp. 40-44.

17. Srdjević, B., Srdjević, Z., Kolarov, V. (2004): *Group evaluation of walnut cultivars as a multicriterion decision-making process*. In CIGR International Conference, Beijing, China, pp. 11-14.

18. Stanojevic, Lj., Trivan, D., Bakreski, O. (2016): *Kvantitativna analiza ocene rizika revidiranja*, Oditor, Belgrade, Serbia, vol. 2, no. 3, pp. 21-38.

19. Tojnko, S., Rozman, Č., Unuk, T., Pažek, K., Pamič, S. (2011) *A Qualitative Multi-Attribute Model for The Multifunctional Assessment of "Streuobst Stands" in NE Slovenia*. Erwerbs-Obstbau, Vol. 53, No. 4, pp. 157-166.

20. Van Chuong, H. (2011): *Land Suitability Analysis and Evaluation for Production of Fruit Trees Using GIS Technology*. Journal of Science, Hue University, Vol. 67, No. 4A, pp. 13-22.

VIŠEKRITERIJSKA ANALIZA VOĆNJAKA PREMA KONCEPTU INTEGRALNE PROIZVODNJE

Aleksandar Maksimović⁴, Zoran Grgić⁵, Ferhat Čejvanović⁶

Sažetak

Integralna proizvodnja voća (IPV) je ekonomična i kvalitetna proizvodnja voća koja daje prioritet ekološko prihvatljivih sredstava za proizvodnju. Ona smanjuje nuspojave s ciljem da se poveća očuvanja okoline i zdravlja ljudi.

Prateći zahtjeve tržišta i povećanjem standarda proizvodnje, nametnuta je integrirana proizvodnja koja omogućava isplativosti, ravnopravno tržišno takmičenje i ekološko prihvatljivu proizvodnju poljoprivrednih proizvoda.

Uvođenje i provođenje modela višekriterijskog odlučivanja bazira se na DEXi metodom (višekriterijska analiza). Ova metoda omogućuje odabir najprimjerenijih voćne vrste za pokretanje proizvodnje voća. Ovaj model odlučivanja temelji se na ekspertskom mišljenju stručnjaka iz područja integrirane proizvodnje. Glavni kriterij u ocjenjivanju IPV prema DEXi modelu ekspertnog sistema su: ekonomski, tehnološki, ekološki i društveno-politički.

Rezultati višekriterijskog ekspertnog sistema DEXi pokazali su da je šljiva daje najbolje rezultate u skladu s integriranom konceptu proizvodnje i mogu se preporučiti kao prvi sadnog alternativu. Druga alternativa preporučuje jabuka, dok se treći preporučuje kruške.

Ključne riječi: *Integralna proizvodnja voće, stručnjak za donošenje odluka, DEXi metoda, izbor voćne vrste, šljiva, jabuka, kruška.*

4 Aleksandar Maksimović, doktorant, predavač, Visoka škola računarstva i poslovnih komunikacija eMPIRICA u Brčko distriktu, Bulevara mira 4, Brčko district 76100, Bosna i Hercegovina, Telefon: +387 49 230 111, E-mail: a.maksimovic22@gmail.com.

5 Redovni profesor, dr Zoran Grgić, Univerzitet u Zagrebu, Poljoprivredni fakultet, Svetosimunska cesta 25, Zagreb, Hrvatska, Telefon: +385 01 239 3760 E-mail: zgrgic@agr.hr.

6 Vanredni profesor, dr Ferhat Čejvanović, Univerzitet u Tuzli, Ekonomski fakultet u Tuzli, Univerzitetska Ulica br. 8, Tuzla, Bosna i Hercegovina i Vlada Brčko distrikta Bosne i Hercegovine, Bulevar mira br. 1, Brčko distrikt, Bosna i Hercegovina, Telefon: +387 35 320 820, E-mail: ferhat.cejvanovic@gmail.com.

MULTI- CRITERIA DECISION BASED APPROACH TO SELECTING THE TYPE OF INDUSTRIAL HALLS USED IN FOOD INDUSTRY

Ozrislava Milinković¹, Branislav Jakić², Slobodan Vuksanović³, Dragana Macura⁴, Milica Šelmić⁵

Abstract

Design of production facility in food industry covers all stages of its development, from concept and selection of technological processes to the construction and putting facility in to operation. The objectives pursued in the selection and construction of multipurpose industrial facility is reducing costs as well as the negative impact that the building has on the environment. In other words objectives are connecting engineering theory and practice, in order to achieve savings in the use of resources necessary for the construction, reducing costs of maintenance and usage of the facility from the perspective of the whole life cycle. Introducing the concept of sustainability in food industry must start from choosing sustainable plant where food is processed, packed and stored. This is important because in a polluted environment is not possible to produce high-quality food. Applying multi-criteria decision methods is enabling us to objectively evaluate the impact that industrial buildings used in the food industry have on the environment, as well as their ability to meet production and environmental criteria. The paper is devoted to an analysis of commonly used industrial halls in food industry and building systems in terms of environmental protection and sustainable development.

-
- 1 Ozrislava Milinković Ph.D., University Business Academy Novi Sad, Faculty for Applied Management Economic and Finance, Nemanjina 4, 11000 Belgrade, Serbia +381 11 2643390, E-mail: ozradjurovic@yahoo.com
 - 2 Branislav Jakić Ph.D., Full Professor, University Business Academy Novi Sad, Faculty for Applied Management Economic and Finance, Nemanjina 4, 11000 Belgrade, Serbia+381 11 2643390,E-mail: branislav.jakic@mef.edu.rs
 - 3 Slobodan Vuksanović Ph.D., Assistant Professor,University Business Academy Novi Sad, Faculty for Applied Management Economic and Finance, Nemanjina 4, 11000 Belgrade, Serbia +381 11 2643390,E-mail: jassnna@yahoo.com
 - 4 Dragana Macura Ph.D., Assistant Professor, Belgrade University, Faculty of Transport and Traffic Engineering, Vojvode Stepe 305, 11000 Belgrade, Serbia,+381 11 3091286, E-mail: d.macura@sf.bg.ac.rs
 - 5 Milica Šelmić Ph.D., Assistant Professor, Belgrade University, Faculty of Transport and Traffic Engineering, Vojvode Stepe 305,11000 Belgrade, Serbia,+381 11 3091286, E-mail: m.selmic@sf.bg.ac.rs

Key words: *multipurpose industrial halls, environmental protection, sustainable development, multi-criteria decision method - analytical hierarchy process.*

JEL: *L74, Q01, Q40, Q50*

Introduction

The Industrial Revolution and the development of mass production led to an increase in living standards and to progress in almost all aspects of human life. Development of the industry led to urbanization, economic and social prosperity, mass food production and increase in population. Development of new technologies has strongly reflected in the agriculture and food industry. Use of pesticides and fertilizers has enabled the creation of more abundant food supply while chemists and chemical engineers contributed food to be higher in quality and tastier. However, human progress has come at the great price to environment. Increase in population inevitably led to increased exploitation of resources, deforestation, and emission of carbon dioxide, pollution of water, air and waste generation. Depletion of resources and growing environmental pollution triggered the reaction of experts to review the relationship between people and nature and to introduce the concept of “sustainability” in all aspects of human activity.

Methodology

In the paper relevant literature was used and the realistic data regarding initial cost of building construction, speed of construction, cost of maintenance for the period of 60 years, thermal losses, energy used for manufacturing construction material, mechanical resistance and stability of the building, noise protection, lifespan of the building, possibility of recycling, emission of harmful substances and radiation from materials and fire resistance. Analysis of the data was performed using multi-criteria decision-making method Analytic Hierarchy Process (AHP), with purpose of selecting the type of multipurpose industrial facility (hall) used in the food industry which will be cost effective while respecting environmental criteria.

Problem of selecting type of industrial hall used in the food industry

Selecting the type of industrial hall is a complex process because the selection criteria are often contradictory as well as interests of participants in decision-making process. Criteria that are most commonly conflicted are the initial price of the construction and impact on the environment. It is not uncommon that objects that have a low or lower initial construction costs have very high cost of maintenance and exploitation that can exceed the initial cost of construction several times as well as being environmentally unfriendly, over-consuming natural resources and therefore are not sustainable. In practice the main selection criteria of investment is the initial cost of construction without considering the cost of maintenance, cost of exploitation the exploitation and environmental impacts through the entire life cycle of the object.

Multi-criteria decisions making processes is applied to the important strategic decisions when there are a large number of criteria needed to be taken in to account as well as a large number of stakeholders (decision makers) with conflicted value systems. Multi-criteria decisions

making processes and its methods can greatly improve the decision-making process and contribute to a more detailed and more accurate comparative analysis of infrastructure facilities by various criteria, such as economic and ecological. The proposed “best solution” has a good chance to be accepted as a good compromise between the various conflicting interests of participants in decision making process. Such methodological approach can lead to significant financial savings, reduced environmental pollution, resource consumption and faster integration into the European standards.

Belgrade region has a significant land potential of about 221 thousand hectares of agricultural land, which makes 68% of the total territory of Belgrade (Belgrade chamber of industry and commerce, 2015). Available land has significant capacity for the cultivation and processing of basic agricultural products, which is a good basis for the development of food industry. Development of food industry requires the construction of industrial facilities for the processing, storage, packaging and distribution of agricultural products. To assess the impact of industrial facilities on the environment and human health it is necessary to consider all phases of construction including the use of natural raw materials for the manufacture of building products of the construction method, the use of object-hall and eventually demolition and recycling. The construction is considered to be an activity that consumes the greatest amount of natural resources, requires high energy consumption during construction of multipurpose industrial buildings, as well as the operation of facilities (heating, cooling, and lighting) which is directly related to the emission of carbon dioxide and greenhouse gases.

In order to select the most sustainable industrial building-hall, analysis was conducted on the four most frequently built industrial halls used in the food industry:

- A1 - steel hall with sandwich panels,
- A2 - classic brick hall with a steel roof,
- A3 - prefabricated halls of reinforced concrete elements and
- A4 - prefabricated halls of ferrocement sandwich elements.

For the assessment of the sustainability and profitability of multifunctional industrial halls the following criteria has been taken in consideration: initial cost of building construction, speed of construction, cost of maintenance for the period of 60 years, thermal losses, energy used for manufacturing construction material, mechanical resistance and stability of the building, noise protection, lifespan of the building, possibility of recycling, emission of harmful substances and radiation from materials and fire resistance.

Based on realistic data from the practice properties of materials used and construction of buildings following calculations have been made:

X1 – Initial cost of building construction. The value of construction objects can be expressed through the total cost and over the unit of measurement of the constructed object. In Serbia it is common practice that m² is used as unit of measurement of built space. Cost calculations include only construction without finishing works and furnishing of the object. Values are defined according to the current offers of contractors.

Table 1. Average price of industrial halls € / m²

Type of hall	Average price € / m ²
Steel hall with “sandwich” panel	210
Hall made of bricks with steel roof	320
Prefabricated hall made from reinforced concrete (AB)	380
Prefabricated ferrocement (FC)	290

Source: Authors’ research

X2 - The speed of construction. It is measured with the number of days required to build facility. Speed of construction depends largely on the construction technology. Construction technology can be classified into: a traditional construction, improved traditional construction, industrialized construction and prefabrication.

Table 2.Speed of construction measured in working days

Type of hall	Speed of construction measured in working days
Steel hall with “sandwich” panel	60
Hall made of bricks with steel roof	120
Prefabricated hall made from reinforced concrete (AB)	45
Prefabricated ferrocement (FC)	45

Source: Authors’ research

X3 - Maintenance costs for a period of 60 years. Maintenance is a process which ensures that a building or its parts are functional to use. Maintenance ensures safety, functionality and maintains the value of the property and its quality. In The Law on Planning and Construction of the Republic of Serbia are given two types of maintenance: investment and ongoing maintenance. Investment maintenance is performing construction or other works, depending on the type of object in order to improve condition during exploitation of the facility (Law on planning and construction article 2-36).

The current (regular) maintenance is performing the in order to prevent any damage caused by the use of the object or with the purpose of eliminating such damage and its consisting of inspection, repairs and taking preventive and protective measures, and all other works which provides a satisfactory level of usability (Law on planning and construction article 2-36a).

Table 3. Steel hall with “sandwich panels” - Maintenance cost calculated in Euros

No.	Steel hall	Unit	Qt. /No. work	Period	Times in 60 years	Pack	Price pack. / no. Days	Spending / hours days	Price unit.	Total
1	Paint steel	m ²	742.29	10	5	5l	25	1l/8m ²	0.625	2,319.66
	Work	h	6		5		10	10	2.5	7,500.00
	work platform	h	1		5		10	10	20	10,000.00
2	The ridge	m	1,405	15	3	6m	8		1.33	5,620.00
	The sealant	m	1,405	15	3	600ml	10	50ml/m	0.83	3,512.50
	work	h	12		3		10	10	2.5	9,000.00
	work platform	h	1		3		10	10	20	6,000.00
3	Roof panel	m ²	672	40	1	pcs			26	17,472.00
	work platform	h	6		5		10	10	3	9,000.00
	crane	h	1		5		10	5	50	12,500.00
4	gutters	m	138	25	2	m			4	1,104.00
	work	h	3		2		5	10	3	900.00
	work platform	h	1		2		5	10	20	2,000.00

total for 60 years	86,928.16
for/m2 yearly	1.88

Source: Authors’ research

Table 4. Hall made of bricks with steel roof - Maintenance cost calculated in Euros

No.	Hall from bricks	Unit	Qt. /No. work	Period	Times in 60 years	Pack	Price pack. / no. Days	Spending / hours days	Price unit.	Total
1	Mortar	m ²	672	50	1				7	4,704.00
2	Facade and facade paint	m	672	20	2				4	5,376.00
	work	h								0.00
	work platform	h	1		3		20	8	20	9,600.00
2	The ridge	m	663	15	3	6m	8		1.33	2,652.00
	The sealant	m	663	15	3	100m	25	m	0.25	497.25
	work	h	6		5		10	10	2.5	7,500.00
	work platform	h	1		5		10	5	20	5,000.00
3	Roof panels	m ²	762	40	1	pcs			8	6,096.00
	work	h	6		5		10	10	3	9,000.00
	crane	h	1		5		10	5	50	12,500.00
4	gutters	m	138	25	2	m			4	1,104.00
	work	h	3		2		5	10	3	900.00
	work platform	h	1		2		5	10	20	2,000.00

total for 60 years	66,929.25
for/m2 yearly	1.45

Source: Authors’ research

Table 5. Prefabricated AB hall - Maintenance cost calculated in Euros

No.	AB Hall	Unit	Qt. /No. work	Period	Times in 60 years	Pack	Price pack. / no. Days	Spending / hours days	Price unit.	Total
1	Color concrete	m ²	672	15	3	5l	30	1l/4m ²	1.5	3,024.00
	work	h	6		3		10	10	2.5	4,500.00
	work platform	h	1		3		10	10	20	6,000.00
	The sealant	m	1,405	15	3	600ml	10	50ml/m	0.83	3,512.50
	work	h	12		3		10	10	2.5	9,000.00
	work platform	h	1		3		10	10	20	6,000.00
3	POLY-URETHAN	m ²	672	15	3	25kg	130	1.5kg/m ²	7.8	15,724.80
	work	h	6		3		6	10	3	3,240.00
4	gutters	m	138	25	2	m			4	1,104.00
	work	h	3		2		5	10	3	900.00
	work platform	h	1		2		5	10	20	2,000.00

total for 60 years	55,005.30
for m2 yearly	1.19

Source: Authors' research

Table 6. Prefabricated FC hall - Maintenance cost calculated in Euros

No.	FC hall	Unit	Qt. /No. work	Period	Times in 60 years	Pack	Price pack. / no. Days	Spending / hours days	Price unit.	Total
1	Mortar	m ²	213	50	1				7	1,491.00
2	Facade and façade color	m	213	20	2				4	1,704.00
	work platform	h	1		3		8	10	20	4,800.00
3	POLY-URETHAN	m ²	1,217	15	3	25kg	130	1.5kg/m ²	7.8	28,477.80

total for 60 years	36,472.80
for/m2 yearly	0.79

Source: Authors' research

X4 –Energy used for the production of building materials. Construction materials are mainly obtained by processing of raw materials. For the production of building materials it is necessary to spend a certain amount of energy in order to obtain a usable building material from raw materials. Besides greenhouse gas emissions production process often requires a great expenditure of energy (Kreijger, 1979). Production of building materials is responsible for 80% of energy consumption and the construction process itself is responsible for only 13% (Gorkum, 2010). For the selection of building materials in addition to functionality, the impact they have on people's health the total energy balance should be taken into account (Hawken, Lovins, Lovins, 2009). It represents the total energy that some construction materials "consume" during the lifetime.

Table 7. Steel hall with “sandwich panels” - Energy consumption during manufacturing of construction materials

No.	Description of materials	m ³	t	kwh/t	Mwh total
1	Steel and steel plates	5.14	40.06	4,500.00	180.29
2	Mineral wool	148.00	17.76	6,000.00	106.56
					286.85

Source: Authors’ research

Table 8. Hall made of bricks with steel roof - Energy consumption during manufacturing of construction

No.	Description of materials	m ³	t	kwh/t	Mwh total
1	Steel and steel plates	3.28	25.57	4,500.00	115.07
2	Clay blocks	156.00	109.20	832.00	90.85
3	AB,MB30	18.00	48.60	1,050.00	51.03
4	Mineral wool	159.58	19.15	6,000.00	114.90
					371.85

Source: Authors’ research

Table 9. Prefabricated FC and AB halls - Energy consumption during manufacturing of construction

Description of materials	<i>Prefabricated FC hall dimensions 48x17</i>	<i>Prefabricated AB hall dimensions 48x17</i>
	Mwh	Mwh
Cement and steel	166.79	242.99
Extruded polystyrene	110.84	117.31
TotalMwh	277.63	360.30

Source: Authors’ research

X5 - Thermal losses. Thermal transience also known as the “U” -value, is the rate of heat transfer and is measured in watts through one square meter of the building divided by the difference in temperature across the structure. It is expressed in watts per square meter (W / m²K). The thermal transience of most of the walls and roofs can be calculated using the ISO 6946 standards; unless there are metal bridges to bridge the insulation in which case can be calculated using the ISO 10211 standards. ISO 6946 is the method of calculating the thermal resistance and thermal conductivity of construction components and building elements, excluding doors windows and other components through which air flows is provided and heat transfer in the ground (ISO 6946:2007).The characteristics of heat transfer depend on each structural element of the thermal conductivity of the material used, the thickness of the various components, geometric structure (straight, curved walls) as well as environmental conditions. The term “heat transfer loss” is a term used to describe the ability of the building envelope to save energy which is very important in assessing the energy efficiency of the

building. Construction objects are responsible for 40% of total energy consumption in all European Union member states (Poel, Cruchten, Balaras, 2007).

Table 10. Thermal losses for analyzed halls

No.	Type of hall	c	Steel hall with "sandwich" panel			Hall made of bricks with steel roof			RC hall			FC hall		
			m ²	w/m ² K	W	m ²	w/m ² K	W	m ²	w/m ² K	W	m ²	w/m ² K	W
1	Outer window - vertical wall	1	163	3.1	19,201.40	163	3.1	19,201.40	163	3.1	19,201.40	19.2	3.1	2,261.76
2	Outer window - roof	1		3.1			3.1			3.1		42.2	3.1	4,971.16
3	Outer vertical wall	1	672.77	0.39	9,970.51	672.77	0.27	6,902.66	672.77	0.25	6,391.35	213.03	0.26	2,104.78
4	Roof	1	768.84	0.39	11,394.21	768.84	0.39	11,394.21	768.84	0.25	7,303.98	1217	0.29	13,411.33
5	Floor	0.5	768.84	0.29	8,472.62	768.84	0.29	8,472.62	768.84	0.29	8,472.62	768.84	0.29	8,472.62
6	Surface of outer layer	m ²	2,373.45			2,373.45			2,373.45			2,260.27		
7	Volume of the object	m ³	5,190.44			5,190.44			5,190.44			5,190.44		
8	Factor of the specific shape	c	0.46			0.46			0.46			0.44		
9	Transmission loss	W	49,038.73			45,970.88			41,369.35			31,221.65		
10	Specific transmission losses	W/m ³	9.45			8.86			7.97			6.02		

Source: Authors' research

X6 - Total CO₂ emissions during the manufacturing of construction materials. During the manufacturing and processing of building materials, the environment is polluted in several different ways (Cole, 1998). One of the most alarming is through the emission of harmful gases especially carbon dioxide (CO₂). Construction materials are responsible for 75% of the total carbon dioxide emissions during the construction of the facility (Flower, Sanjayan, 2007). Based on values for emission of CO₂ for usual and alternative materials calculation has been made of total CO₂ emission during the manufacturing of construction materials for analyzed halls.

Table 11. Steel hall with "sandwich panels" - Total CO₂ emission

No.	Description of materials	m ³	t	CO ₂ kg/t	CO ₂ (t) total
1	Steel and steel plates	5.14	40.06	1,720.00	68.91
2	Mineral wool	148.00	17.76	1,100.00	19.54
					88.45

Source: Authors' research

Table 12. Hall made of bricks with steel roof - Total CO₂ emission

No.	Description of materials	m ³	t	CO ₂ kg/t	CO ₂ (t) total
1	Steel and steel plates	3.28	25.57	1,720.00	43.98
2	Clay blocks	156.00	109.20	114.00	12.45
3	AB, MB30	18.00	48.60	370.00	17.98
4	Mineral wool	159.60	19.15	1,100.00	21.07
					95.47

Source: Authors' research

Table 13. AB and FC halls - Total CO₂ emission

Description of materials	<i>Prefabricated FC hall dimensions 48x17</i>	<i>Prefabricated AB hall dimensions 48x17</i>
	CO ₂ (t)	CO ₂ (t)
Cement and steel	75.06	103.95
Extruded polystyrene	12.21	12.93
Total emission of CO₂ (t)	87.28	116.88

Source: Authors' research

X7 - The emission of harmful substances and radiation from materials. Emission of harmful substances that are occurring as a result of production, exploitation, and destruction of building materials are negatively affecting both human health and the environment (Costner, 2005). State authorities are continuously studying different types of chemical additives used for creating and improving performance of construction materials. Many are rated as extremely toxic and even carcinogenic. Some of the most commonly used building materials include polyvinyl chloride (PVC), formaldehyde, radon and crystalline silicon.

- Steel hall with sandwich panels - sandwich panels are coated with “PVC” film to ensure water resistance. This coating to a lesser extent emits toxic fumes in the form of gas dioxin. According to the criteria emission of harmful substances and radiation from materials, this hall could be assessed as “average”.
- Hall made of bricks with steel roof- In the composition of this hall all natural materials are included such as clay blocks and mortar. Hollow clay blocks are made of bricks which in small quantities are releasing toxic gas radon. According to the criteria of emission of harmful substances and radiation from the material, this hall could be assessed as “average”.
- AB Prefabricated halls - In the composition of this hall next to the cement and mineral wool insulation that does not come in contact with the end user, are all natural materials which are not hazardous to human health. According to the criteria of radiation harmful substances from the material, this hall was assessed as “good”.
- FC Prefabricated halls - In the composition of this hall next to the cement and steel and polystyrene is included. All this materials are not hazardous to human health. According to the criteria of radiation harmful substances from the material, this hall was assessed as “good”.

X8 - Resistance to fire. DIN 4102 is widely accepted and used, German standard which describes the fire resistance properties of materials (DIN 4102-2). For the purpose of testing, materials are exposed to direct flame and then the rate of burning is measured. According to this standard, materials are classified as follows:

Table 14. Fire resistance expressed in minutes

Type of hall	Fire resistance expressed in minutes
Steel hall with “sandwich” panel	30
Hall made of bricks with steel roof	30
Prefabricated hall made from reinforced concrete (AB)	90
Prefabricated ferrocement (FC)	120

Source: Authors’ research

X9 - Protection against noise. Environmental noise is unwanted or harmful sound (Law on noise protection in the environment article 3-1). The only obstacle between the people and the noise lies in the construction techniques, materials, and in creating physical barriers which reduces the sound energy to the allowable limit in the relevant areas. Sound protection is realized by choosing suitable design of the facility, performing sound insulation and mitigation measurement, or noise limitations (Law on noise protection in the environment article 3-17). Sound insulation is managed in the facility by implementing architectural - building measures that prevent the transmission of sound from one room to another after broadcasting with aimed to prevent the transmission of sound as much as possible. The goal is to reduce the noise that users of object can hear to the acceptable level. The unit of measurement which expresses the sound level is the decibel. The calculation is based on the properties of exterior walls and materials they are made from and it’s carried out by the Faculty of civil engineering. In their work Antalova and Minarovièová (2003) are showing acoustic properties of homogeneous and composite elements. Based on these data following values have been defined:

Table 15. Noise protection values for analyzed halls

Type of hall	Noise protection expressed in dB
Steel hall with “sandwich” panel	32
Hall made of bricks with steel roof	61
Prefabricated hall made from reinforced concrete (AB)	72
Prefabricated ferrocement (FC)	64

Source: Authors’ research

X10 - Mechanical resistance and stability of the building. The mechanical stability of the object can be static and dynamic. Static stability implies that the structure must be designed in a way that during the process of construction and usage does not crash deform or any other kind of structural damage does not occur. Dynamic stability implies that the structure must be designed so that due to the effect of natural forces such as earthquakes, wind or load due to the snows does not come to collapsing of the object.

Table 16. Mechanical stability and resistance values for analyzed halls

Type of hall	Mechanical stability and resistance expressed in MPa (N/mm ²)
Steel hall with “sandwich” panel	0.07
Hall made of bricks with steel roof	3.5
Prefabricated hall made from reinforced concrete (AB)	10
Prefabricated ferrocement (FC)	30

Source: Authors’ research

X11 - *The lifespan of the facility.* The life span of the building structure can be described by:

- Technical lifetime is the period in which the construction element or structure is able to fulfill its intended function.
- Functional lifetime refers to the time period in which the objects fulfill the purpose of its aim and expectations of users in accordance with applicable standards and regulations.
- Economic life of the building structure is the period in which the costs of its operation and maintenance are within the planned cost.

Table 17. Life span of halls expressed in years

Type of hall	Life span of halls expressed in years
Steel hall with “sandwich” panel	30
Hall made of bricks with steel roof	Up to 50
Prefabricated hall made from reinforced concrete (AB)	Over 100
Prefabricated ferrocement (FC)	Over 100

Source: Authors’ research

X12 - *Possibility of recycling.* Construction industry is responsible for almost 40%–50% of solid waste produced in the European Union yearly (Sterner, 2002). After demolishing a construction object behind it remains building materials such as concrete, wood, glass, metal structures and other. With recycling of these materials their processing and re-use reduces the negative impact of environmental contamination occurring during the production of new material. The recycling reduces the amount of waste and use of natural resources, recycling and reuse of materials reduces the energy and thus emissions of carbon dioxide that is emitted into the air during excavation of raw materials from nature and it’s processing (Perez-Lombard, Ortiz, Pout, 2008).

- Steel hall with “sandwich” panels - Steel is material very suitable for recycling while the sandwich panels cannot be recycled due to the filling of mineral wool, which can harm human health. Evaluation of recyclability is “average”.
- Hall made of bricks with steel roof- Steel reinforcement and concrete forming part of this hall can be very successfully recycled while facade and insulation materials from mineral wool are not suitable for recycling. Evaluation of recyclability is “average”.

- Prefabricated reinforced concrete hall (AB) -Reinforced concrete that majority work became part of this hall can be recycled as insulation material polystyrene. Rating recyclability is “very good.”
- Prefabricated ferrocement halls (FC) Even though the whole building consists of reinforced concrete, reinforcement method is very specific and the armature is difficult to disentangle from concrete which prevents completely recyclable. Insulating filling is polyurethane that can be recycled. Rating recyclability is “very good.”

Multi- criteria decision based approach used - Analytical Hierarchy Process

Multi criteria decision making process represents one of the most important nonmonetary analysis of today (Papadopoulos,Karagiannidis, 2008) and analysis suitable for evaluation of construction projects and their impact on the environment (San-Jose,Cuadrado, 2010). Analytical hierarchy process (AHP) is one of the most used multi-criteria approaches to scenario analysis and decision-making with consistent evaluation of elements criteria and alternative (Saaty, 1980). AHP is a decision support system. A specific tool for the analysis of the hierarchy of the system, which by evaluating system elements in pairs in relation to the elements of the upper-level hierarchy level, is helping decision makers in the decision process.

AHP allows interactive analysis of the sensitivity of the evaluation process. In addition to this advantage, during the evaluation of elements it checks the consistency of reasoning and decision-makers examine the validity of the obtained rankings of alternatives and criteria, as well as their weight values (Saaty, 1986). AHP approach can treat both quantitative and qualitative attributes of alternatives.

AHP has been applied in various fields of strategic management, where decisions have far-reaching significance. Significance and validity of the scientific basis of this approach is confirmed by the numerous scientific papers and dissertations in which this approach is studied in detail and upgraded. Several scientific conferences dedicated only AHP approach, further confirming its quality and timeliness.

The hierarchy consists of a goal, which is at the top, and he is not compared with any other element of the system; then follows the second level - the criteria to be compared to each other in pairs in relation to the target. If there are sub criteria, they are mutually comparable in relation to each criterion, to which they belong. Finally, the alternatives are compared in relation to the criteria. So, at each hierarchical level elements are compared in relation to the elements of the upper-level.

Application of analytical hierarchy process and analysis of results

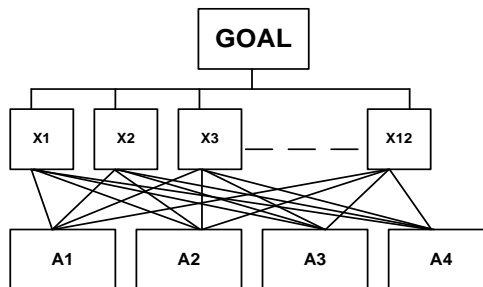
In this paper model was developed to select the type of industrial buildings - halls used in the food industry. The aim of this multi-criteria model is to maximize the profitability of the hall for the entire life cycle of the facility. Total of twelve relevant criterion has been defined, and the four alternatives, as discussed in the previous section. The developed model is graphically represented in the following figure.

Table18. Values of alternatives as per selected criterions

	Initial cost of construction	Speed of construction	Thermal losses	Energy needed for production of construction materials	Cost of maintenance for the period of 60 yrs	Total emission of CO ₂ in production of construction materials	Fire resistance	Emission of harmful substances and radiation from materials	Sound protection from air - outside (Rw)	Mechanical stability and resistance	Life span	Recycling
Description	eur/m ²	work.day	wj/m ³	kwh	eur/m ²	t	minutes	5 points desc:	dB	MPa. (N/mm ²)	years	5 points desc:
Steel hall with sandwich panels	210	60	9.45	286.85	1.88	88.45	30	average	32	3.5	40	average
Hall made from bricks with steel roof	320	120	8.86	371.85	1.45	95.47	30	average	61	10	50	good
Prefabricated AB hall	380	45	7.97	360.30	1.19	116.88	120	good	72	30	100	very good
Prefabricated FC hall	290	45	6.02	277.63	0.79	87.28	120	good	64	34	100	good

Source: Authors’ research

Figure 1. AHP model



Source: Authors’ research

In the developed model some criterions are “cost” type such as: initial cost of construction, speed of construction, thermal losses, maintenance costs, energy needed for production of construction materials, total emission of carbon dioxide during the production of construction materials emission of harmful substances and radiation from materials; and some are “benefit” type: fire resistance, possibility of recycling, noise reduction, mechanical stability and resistance, life cycle cost of object. “Cost” type criterions we wish to minimize while “benefit” type criterions we wish to maximize.

To define final rang of alternatives it is necessary to define relative weight of criterions. To the first criterion “initial cost of construction” double values is given compared to the other criterions which are of the same value. The reason behind such defining of a relative weight of criterions and giving priority to the first criterion compared to the others, is the fact that in practice it is price that is breaking factor in selecting type of industrial hall.

Table 19. Weights of criterions

Criteria	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12
Relative weights	0.15	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08

Source: Authors’ research

Next table represents final rang of halls and relative weights of alternatives. Calculation has been made after implementation of AHP multi-criteria decision support model.

Table 20. Final ranking of calculated results

Alternatives	Relative weight of alternatives	Final ranking of alternatives
Steel hall with “sandwich” panel	0.155	3
Hall made of bricks with steel roof	0.144	4
Prefabricated hall made from reinforced concrete (AB)	0.301	2
Prefabricated ferrocement (FC)	0.401	1

Source: Authors’ research

Conclusion

Application of the Analytic Hierarchy Process (AHP) method for decision support enabled the objective decision of selecting the type of multipurpose industrial facility (hall) used in the food industry. We analyzed four types of most commonly built industrial halls used in the food industry: steel hall with sandwich panels, classic brick hall with a steel roof, prefabricated halls of reinforced concrete elements and prefabricated halls of ferrocement sandwich elements.

Analysis was carried out with the aim of reducing costs and respecting relevant environmental criteria. The data used in the analysis are real and calculated on the basis of material properties and structure of the analyzed object. According to the results of analysis, object which is recommended as a good compromise for investors from the aspect of cost reduction and preservation of the environment is prefabricated ferrocement hall. Such a result has justified from following reasons: with selection of prefabricated ferrocement hall financial savings at least 20% financial savings have been made for the investor compared to the other three halls. Also considerable savings are visible in the usage of construction material as 30% less cement and 31% of steel is needed. Additional savings are made in the transportation and assemble phase due to the considerable less weight of the construction (at around 50%). This type of hall can be recycled almost entirely and it provides savings in energy through entire life cycle of object: in the construction faze 30%, exploitation 50%, and recycling 50%.

Literature

1. Antalová, L., Minarovièová, K. (2003): *Evaluation of the acoustic properties of homogeneous and composite elements applied to partition wallsand doors*, Slovak journal of civil engineering pg 38.
2. Cole, R. J. (1998): *Energy and greenhouse gas emissions associated with the construction of alternative structural systems*, University of British Columbia: Environmental research group.
3. Costner, P. (2005): *Estimating Releases and Prioritizing Sources in the Context of the Stockholm Convention*, International POPs Elimination Network, Mexico, 2005 Fires, U.S. Fire Administration, Topical Fire Research Series, Vol. 1, No. 18, pg. 10.

4. DIN 4102-2 Fire Behavior of Building Materials and Building Components; Building Components; Definitions, Requirements and Tests, German Institute for Standardization.
5. Gorkum, C. (2010): *CO₂ emissions and energy consumption during the construction of concrete structures*, Delft University of Technology, Holland, pg 4-3.
6. Flower, D.J., Sanjayan, J.G. (2007): *Green House Gas Emissions due to Concrete Manufacture*, Clayton, Australia.
7. Hawken, P., Lovins, A.B., Lovins, L.H. (2009): *Natural capitalism: Creating the next industrial revolution*, Boston, USA: Little, Brown and Company, pg. 119.
8. ISO 6946:2007 *Building components and building elements -Thermal resistance and thermal transmittance- Calculation method*, International Organization for standardization, Geneva.
9. Belgrade chamber of industry and commerce (2015): retrieved from <http://www.kombeg.org.rs/Komora/udruzenja/UdruzenjePoljoprivrede.aspx?veza=1101>
10. Papadopoulos, A., Karagiannidis, A.(2008):, *Application of the multi-criteria analysis Method Electre III for the optimization of decentralized energy systems*, Omega, 2008, pg. 39.
11. Perez-Lombard, L., Ortiz, J., Pout, C.(2008): *A review on building energy consumption Information, Energy and Buildings*, Vol. 40, No. 3, pg. 396.
12. Poel, B., Cruchten, G., Balaras, C.A. (2007): *Energy performance assessment of existing dwellings*, *Energy and Buildings*, Vol. 39, No. 4, pg. 400.
13. San-Jose, L. J.T., Cuadrado, R. J.(2010): *Industrial building design stage based on a system approach to their environmental sustainability*, *Construction and Building Materials*, Vol. 24, No. 4, pg. 440.
14. Sterner, E. (2002): *Green procurement of buildings: A study of Swedish clients considerations*, *Construction Management and Economics*, Vol. 20, No. 1,pg. 25.
15. Thomas Saaty, (1980): *The Analytic Hierarchy Process: Planning, Priority Setting, Resource Allocation*, McGraw-Hill
16. Thomas Saaty, (1986): *Axiomatic foundation of the analytic hierarchy process*, *Management Science*, Vol. 32, No. 7, pg. 849.
17. Kreijger, P., (1979): *Energy analysis of materials and structures in the building industry*, *Applied Energy*, pg.17.
18. Law on planning and construction, (“Sl. glasnik RS”, br. 72/2009, 81/2009 - ispr., 64/2010 - odluka US, 24/2011, 121/2012, 42/2013 - odluka US, 50/2013 - odluka US, 98/2013 - odluka US, 132/2014 i 145/2014) article 2- 36.
19. Law on planning and construction, (“Sl. glasnik RS”, br. 72/2009, 81/2009 - ispr., 64/2010 - odluka US, 24/2011, 121/2012, 42/2013 - odluka US, 50/2013 - odluka US, 98/2013 - odluka US, 132/2014 i 145/2014) article 2- 36a.
20. Law on noise protection in the environment, (“Službeni glasnik RS”, br. 36/2009 i 88/2010) article 3-1.
21. Law on noise protection in the environment, (“Službeni glasnik RS”, br. 36/2009 i 88/2010) article 3-17.

VIŠEKRITERIJUMSKI PRISTUP IZBORA TIPa INDUSTRIJSKIH HALA KORIŠĆENIH U PREHRAMBRENOJ INDUSTRIJI

*Ozrislava Milinković⁶, Branislav Jakić⁷, Slobodan Vuksanović⁸, Dragana Macura⁹,
Milica Šelmić¹⁰*

Abstrakt

Projektovanje proizvodnog pogona prehrambene industrije uključuje sve faze njegovog razvoja, od ideje i odabira tehnološkog procesa do izgradnje i puštanja u pogon. Ciljevi kojima se teži u odabiru i izgradnji višenamenskog industrijskog objekta su smanjenje troškova ali i negativnog uticaja koji objekat ima na životnu sredinu. Drugim rečima teži se povezivanju inženjerske teorije i prakse radi ostvarivanja uštede u korišćenju resursa potrebnih za izgradnju, smanjivanja troškova upotrebe i održavanja gledano iz ugla celog životnog ciklusa objekta. Uvođenje koncepta održivosti u prehrambenu inudstriju mora početi od odabira održivih postrojenja u kojima se obrađuje, pakuje i sladišti hrana. Ovo je važno jer u zagađenoj životnoj sredini nije moguća proizvodnja kvalitetne hrane. Primenom višekriterijumskih metoda odlučivanja omogućeno je objektivnije sagledavanje uticaja višenamenskih industrijskih objekata korišćenih u prehrambenoj industriji na životnu sredinu kao i njihovu sposobnost da ispune zadate proizvodne i ekološke kriterijume. Rad je posvećen analizi najčešće korišćenih industrijskih objekata-hala namenjenih prehrambenoj industriji i sistemima gradnje sa aspekta zaštite životne sredine i održivog razvoja.

Ključne reči: *višenamenski industrijski objekti -hale, zaštita životne sredine, održivi razvoj, višekriterijumska optimizacija - analitički hijerarhijski proces.*

-
- 6 Dr Ozrislava Milinković Univerzitet Privredna Akademija Novi Sad, Fakultet za primenjeni menadžment ekonomiju i finansije, Nemanjina 4, 11000 Beograd, Srbija +381 26 43 390, E-mail: ozradjurovic@yahoo.com
 - 7 Profesor, dr Branislav Jakić, Univerzitet Privredna Akademija Novi Sad, Fakultet za primenjeni menadžment ekonomiju finansije, Nemanjina 4, 11000 Beograd, Srbija +381 26 43 390, E-mail: branislav.jakic@mef.edu.rs
 - 8 Docent, dr Slobodan Vuksanović, Univerzitet Privredna Akademija Novi Sad, Fakultet za primenjeni menadžment ekonomiju i finansije, Nemanjina 4, 11000 Beograd, Srbija +381 26 43 390, E-mail: jassnna@yahoo.com
 - 9 Docent, dr Dragana Macura, Univerzitet u Beogradu, Saobraćajni fakultet Vojvode Stepe 305, 11000 Beograd, Srbija, +381 11 3091286, E-mail: d.macura@sf.bg.ac.rs
 - 10 Docent, dr Milica Šelmić, Univerzitet u Beogradu, Saobraćajni fakultet Vojvode Stepe 305, 11000 Beograd, Srbija, +381 11 3091286, E-mail: m.selmic@sf.bg.ac.rs

EMOTIONAL COMPETENCIES AND PERSONALITY TRAITS OF MANAGERS IN MODERN AGROBUSINESS

Gordana Nikić¹, Ljubiša Stamatović², Azra Sućeska³

Abstract

The main goal of this paper is to determine the difference between high-level and mid-level managers in agribusiness compared to lower managerial positions in terms of personality traits and emotional intelligence. The research covered 240 respondents from Serbia. The structure of the sample is heterogeneous, consisting of employees and managers of both genders and various ages. This paper presents the results relating to the permanent staff of 125 managers in the Mercator Group trade chain of food industry. To estimate emotional intelligence Questionnaire of emotional competence (Takšić, Moharić, Munjas, 2006) was used, and Personality Questionnaire was used for estimating dominant personality traits, ZKPQ (Zuckerman, 2002). The results indicate that the higher-level managers show a higher level of emotional intelligence in perceiving and understanding emotions, regulation and management of emotions, and also their personality trait called Activity is higher than in any other group of respondents. The respondents who are in lower managerial positions show higher sociability in relation to the higher-level managers.

Keywords: managers, agribusiness, emotional intelligence

JEL: Q16, M24

Introduction

The present moment of agribusiness development is very dynamic. Modern organizations are trying to find ways to increase productivity and competitiveness on the market in the conditions of sharp competition, open market and globalization, and, on the other hand, consumers are increasingly aware of the importance of food for life and health. The privatization of food sector has made a number of changes which all actors are faced

1 Gordana Nikić Ph.D., Assistant Professor, Singidunum University, Faculty of Tourism and Hospitality Management, Kumodraška Street no. 261a, 11000 Belgrade, Serbia, Phone: +381 63 7365817, E-mail: gnikic@singidunum.ac.rs

2 Ljubiša Stamatović M.A., M.Sc., Ph.D. candidate, Assistant, Union University, Belgrade Banking Academy, Zmaj Jovina Street no. 3, 11000 Belgrade, Serbia, +381 61 2453 486, E-mail: ljubisastamatovic@gmail.com

3 Azra Sućeska Ph.D., Assistant Professor, SUSU-SOUTH Ural State University, Chelyabinsk, Russia, +381 66 234304, E-mail: azra.hanic@bba.edu.rs

with. According to these authors, the competition in the process of trade liberalization brings sharp competition so that agricultural business should develop a new concept of management and marketing in order to provide higher production and sales, based on market and economic conditions (Cvijanovic, Trandafilović, Imamovic, 2013). On the other hand, end users are increasingly aware of the importance of healthy food, which brings new challenges and great opportunities for eco-organic production (Cvijanovic, Dozet, Cvijanovic, 2013).

Despite the fact that the management of agribusiness, as well as of the other fields of business, is mostly occupied with basic issues - how to best use the resources in the uncertain business environment, there are more and more authors who speak about the importance of so-called “soft variables” that include people, knowledge, skills, abilities (Repar, Njari, Par, 2012).

In the business environment of food industry, in the area of management structures, high professionalism and innovativeness are at the forefront, but also high capacity for coordination of personnel, which raises questions of interpersonal skills and personality traits of managers. The man, besides performing physical activities and intellectual operations in the workplace, also takes certain social roles, or looks for his true role, as is the case for managerial jobs. For this reason, an individual needs corresponding personality traits and interpersonal skills (Čukić, 2003, according to Nikić, Mitrovic, Travica, 2014). The present moment in agribusiness puts the spotlight on new strategies and a modern way of doing business, which actualizes a number of management issues, such as openness and willingness of managers to cope with numerous challenges. The leading global companies have realized that the greatest room for improvement does not lie only in improving the quality of products, but also in the field of human resources. Numerous studies show (Berso, Yammarino, 2006; Popper, Amit, 2009) that emotional and social competencies, intellectual flexibility and personality traits of managers are vital for achieving top results at work, especially in the sphere of management in different areas of business.

Modern organizations are made up of a large number of people. There is almost no workplace where people are isolated from each other, so the constant interaction between employees puts the skills of managers in the forefront, and managers, besides their professional competence, are increasingly required to be psychologically astute, flexible, to know how to control themselves and skillfully communicate with others, which are mostly the characteristics of emotional intelligence. Also, in the moments of crisis employees much easier accept the decisions and tasks from managers if they are in accordance with a realistic assessment of reality. How is this realistic approach to management being developed, and to which extent do personality and emotions affect the stability in management? The efforts of researchers are increasingly directed toward the study of all factors affecting productivity. On the one hand, it is known that the strength of managers' performance comes from their available power, expert knowledge, information, skills, different mechanisms of influence and relationships in an organization. On the other hand, personality and social and emotional skills of managers are often crucial for good performance.

Basic characteristics of emotional intelligence

Numerous studies confirm that emotional intelligence can be used as an important construct for understanding the behavior at work (Mayer, Roberts, & Barsade, 2008; O'Boyle, Humphrey, Pollack, Hawver, & Story, 2010). The very concept of emotional intelligence (EI) has its roots in the concept of social intelligence that was developed in the early 20s of 20th century by the psychologist E.L. Thondike (1920). In his opinion, social intelligence includes interpersonal intelligence as the ability to penetrate into what motivates people, how and why people do things and how to successfully cooperate. The psychologists Mayer and Salovey (1990) were first who created the concept of emotional intelligence. They began with the original concept that included three types of processing emotional information: assessment and expression of emotions in ourselves and in others, regulation of emotions, the use of emotions for adaptive purposes. At the very beginning, this concept had mainly heuristic value because it tried to consolidate knowledge from different fields of psychology (Takšić, 1998; Mayer, Salovey, Caruso, 2002).

Later, Mayer and Salovey published the second updated version of the model of emotional intelligence (Mayer, Salovey, 1999, Mayer, Caruso, Salovey, 1999). Within the new model they proposed refinement of the definition of emotional intelligence adding thinking about feelings as an important segment. According to them, emotional intelligence involves the ability of rapid perception, assessment and expression of emotions; the ability to grasp and generate feelings to facilitate thinking; the ability to understand emotions and emotional knowledge; and the ability to regulate emotions in order to promote emotional and intellectual development (Takšić 1998, Mayer, Salovey 1996).

Numerous authors have continued their work, among them Bar-On (Bar-On, 2006; Bar-On, Parker, 2000). He is known for having developed one of the first systems for evaluation that uses the term - coefficient of emotional intelligence. He defines the purpose of emotional intelligence as the effective understanding of one's self and others for establishing good interpersonal relations, and adaptation to the environment for success in meeting the environmental demands. Bar-On believes that EQ can be developed throughout life and that emotional intelligence can be improved in order to enhance personal and professional life. Bar-On also believes that individuals with a higher coefficient of EQ are generally more successful in coping with environmental demands and pressures (Bar-On, Handley & Fund, 2005). Goleman (1996) defined emotional intelligence as the ability to learn many practical skills, which consists of 5 elements: self-awareness, motivation, self-regulation, empathy, commitment in relationships. For the purposes of this work we used Emotional competence questionnaire (Takšić, Moharić, Munjas, 2006) constructed according to the model of Mayer and Salovey (1990), which estimates three aspects of emotional intelligence: the ability to perceive and understand emotions, the ability to express and label emotions, the ability to regulate emotions.

The main characteristics of emotions relate to physiological changes, subjective experience and emotional expression. Communication and adaptation are the basic

functions of emotions by which the body is prepared for adaptive activity but also to receive and transmit communication messages. Facial expression that developed during evolution increases the likelihood of transmission and understanding of emotions. In addition, it has been shown that certain personality traits, such as self-observation, openness to new experiences, extroversion, locus of control and empathy are predictive for successful recognition of emotions. Neuroticism is associated with poorer recognition of emotions (Takšić, 2001).

The ability to understand emotions refers to the observation of regularity of occurrence of certain emotions and general knowledge about emotions, when and how they occur, similarities and differences. Goleman emphasizes self-awareness as an important characteristic of emotional intelligence which refers to the understanding of one's own emotions as well as their own strengths, weaknesses, values and motives.

People with strong self-awareness are realistic in assessing their own and others' emotions (Goleman, Bojacić, Maki, 2006). The ability to regulate and manage emotions refers to the possibility of recognition and awareness of one's own emotions in different situations. The main challenge for leaders is to manage themselves. The most important task of any leader is, in Goleman's opinion, maintaining emotional hygiene or mastering their own emotions, because leaders are unable to handle other people's emotions if they do not first manage themselves. Control of emotions is a sign of social maturity and this ability has evolved to adapt an individual to different social situations (Takšić, 2001).

Personality dimensions of managers and their importance for understanding the behavior at work

Most often it is considered that a manager should be hard-working and working, smart, energetic and ambitious, communicative, with creative, positive strong, courageous and stable personality. However, the personality of a manager has the strongest influence on forming attitudes, values, thinking, perception, problem diagnosis, and thus determines the way of making decisions and taking actions. In this paper, we begin with the personality dimensions defined by Zuckerman (Zuckerman, 2002). In his opinion, personality traits can be described in two ways: as systems or dispositions in an individual to perceive situations in a certain way and respond in a consistent way in these situations, and as a review of the frequency and intensity of past events, including past states and overt behavior in the situations (Zuckerman, 1991). After continuous testing for a full understanding of some personality traits it is necessary to study all levels of its manifestation, considered Zuckerman. The best illustration of Zuckerman's psychobiological model is the explanation of the dimensions of neuroticism which is considered to be explained in terms of activation of the sympathetic nervous system. Zuckerman focused on the study and understanding of the nature and cause of the basic dimensions of personality. He developed a biological model known as Alternative five-factor model. We begin with the personality dimensions defined by Zuckerman (Zuckerman, 2002). We used a reduced scale of 50 items, on the recommendation of the author.

The dimension Activity includes two types of items. The first group, according to Zuckerman, refers to the need for general activity. In people with high scores on this subscale impatience and anxiety appear in situations where there is no possibility to meet these needs. The second sub dimension refers to the tendency toward difficult and challenging tasks. These jobs are usually performed with a lot of energy and effort invested. Aggression and hostility refer primarily to the tendency toward verbal aggression, while the second group of items refers to the offensive, careless or anti-social behavior, revenge, malice and impatience with others.

Impulsive sensation seeking includes two lower-order factors. One refers to the tendency toward impulsive behavior, which is generally accompanied by an inability of planning. Another lower-order factor refers to the tendency to excitement and unpredictable situations, and the need for constant change and novelties.

Neuroticism - anxiety indicates emotional anxiety, tension, worry, fear, obsessive indecisiveness as well as sensitivity to criticism. Sociability includes two subcomponents. One part of the items within this dimension largely refers to enjoying parties and a large number of friends. The second part of the items focuses on the intolerance of social isolation in extroverts and the tendency toward solitary activities in introverts. In the last decades psychologists have documented through numerous studies that emotional intelligence can be used as an important construct for understanding the behavior at work.

Numerous studies have been done with the aim to find out what characteristics are necessary for successful work in the organization, especially the characteristics of managers. According to the results, communication, flexibility, emotional self-control, motivation, effectiveness in teamwork, leadership skills, as well as adequate intellectual functioning, expertise, knowledge and experience are at the forefront. More than half of these characteristics are in the domain of emotional intelligence, which is becoming increasingly important in the higher spheres of management.

Most often it is considered that managers should be strong, stable, courageous, positive and creative personalities, because personality traits rather talk about how managers cope in different situations, how they direct the energy and solve problems, what attitudes and values they have and how they perceive reality as a whole. In this sense, more and more authors speak about the importance of people, knowledge, skills and abilities in order to achieve top results in the uncertain business conditions of modern business, but also in the sphere of agribusiness.

In this paper, we examined the correlations and differences in emotional intelligence and personality traits depending on the managerial position of the respondents.

Methods and materials

Goals and objectives

The main goal of this study is to examine the difference between high-level and mid-level managers in agribusiness compared to lower managerial positions in terms of

personality traits and emotional intelligence.

Hypotheses

General hypothesis: It is expected that there is a statistically significant difference between high-level and mid-level managers compared to lower managerial positions in terms of personality traits and emotional intelligence.

Sample: The research covered 240 respondents from Serbia. The structure of the sample is heterogeneous, consisting of employees and managers of both genders and various ages. This paper presents the results relating to the permanent staff of 125 managers in the Mercator Group trade chain of food industry.

Instruments and variables

To estimate emotional intelligence Emotional Competence Questionnaire was used, with 45 items. This is a shortened version of Emotional Intelligence Questionnaire UEK-136 (Takšić, Moharić, Munjas, 2006) constructed according to the theoretical model of Mayer and Salovey(1990), which estimates three aspects of emotional intelligence: the ability to perceive and understand emotions, the ability to express and label emotions and the ability to regulate emotions. All scales have satisfactory reliability in a variety of samples, from $\alpha=0,71$ to $\alpha=0,90$. This instrument was used in studies in Serbia (Nikić, Mitrovic, Travica, 2014; Nikic, Travica, Mitrovic, 2014; Nikic, Mitrovic, 2015), and showed good characteristics.

To estimate personality type Personality Questionnaire for estimating dominant personality traits was used, ZKPQ (Zuckerman, 2002). In this paper, the shortened scale of 50 items was used on the recommendation of the author. The dimensions of this questionnaire are: Activity (Act), Aggressiveness - hostility (Agg-Host), Impulsive sensation seeking (ImpSS), Neuroticism and Anxiety (N-Anx) and Sociability (Sy). The correlations on individual subscales (Zuckerman, 2002) were: for ImpSS (0.80), N - Anx (0.84), for Agg - Host (0.78), in Act (0.76), and Sy (0.83).

Results and discussion

Connection between personality traits, emotional intelligence and managerial positions

The connection between personality traits, emotional intelligence and managerial positions was examined by Pearson coefficients of the linear correlation on dimensions of emotional intelligence and personality dimensions with a level of managerial positions.

Table 1. Pearson coefficient of linear correlation

		Managerial position
Perceive and understand emotions - EQ	r	.073
	p	.277
Express and label emotions - EQ	r	.360(*)
	p	.017
Regulate and manage emotions - EQ	r	.465(**)
	p	.000
Neuroticism- anxiety ZKPQ	r	-.283(**)
	p	.000
Impulsive sensation seeking - ZKPQ	r	-.080
	p	.230
Activity- ZKPQ	r	.168(*)
	p	.018
Sociability ZKPQ	r	.088
	p	.111
Aggression- hostility ZKPQ	r	-.161(*)
	p	.016

r-Pearson coefficient of linear correlation

p-level of significance: * Correlations significant at the 0.05 level

** Correlation significant at the 0.01 level

Source: Work of authors based on research Nikić, Stamatović, Sućeska, 2017;

Based on these results we can see that the managers in higher positions express and label their emotions better and also have better regulation and management of emotions and higher activity. With the increase in managerial positions the level of neuroticism and anxiety, as well as aggression, decreases.

The differences in emotional intelligence and personality traits depending on managerial positions

The differences in emotional intelligence and personality traits depending on managerial positions were examined by Canonical discriminat analysis. The criterion variable was a managerial position (the respondents were divided into two groups: higher-level managers and lower-level managers). A set of predictor variables consisted of factor scores on the principal components of the subscales of the questionnaire for assessing personality traits and the scores on the subscales of emotional intelligence.

Canonical discriminant analysis

Table 2. Typical root, percentage of variance and canonical correlation

Function	Typical root	Percentage of variance	Cumulative percentage	Canonical correlation
1	.573	88.0	88.0	.603

Source: Work of authors based on research Nikić, Stamatović, Sućeska, 2017;

Table 3. Estimation of the significance of discriminant function

Function	Wilks' Lambda	χ^2	Number of degrees of freedom	p
1	.589	44.428	8	.007

Source: Work of authors based on research Nikić, Stamatović, Sućeska, 2017;

The extracted discriminant function is statistically significant at a significance level of $p=0.007$ and the coefficient of canonical correlation $R_c=0.603$, which means that the existence of difference between the groups of respondents is evident, and this difference is of moderate intensity.

Table 4. Matrix of the structure of discriminant function

	Function
	1
Perceive and understand emotions - EQ	.370
Regulate and manage emotions - EQ	.335
Activity- ZKPQ	.299
Sociability - ZKPQ	-.228
Impulsive sensation seeking - ZKPQ	.192
Neuroticism- anxiety -ZKPQ	-.148
Express and label emotions - EQ	.148
Aggression- hostility ZKPQ	-.086

Source: Work of authors based on research Nikić, Stamatović, Sućeska, 2017;

On the positive pole of the discriminant function there are the dimensions of emotional intelligence: perceiving and understanding emotions and regulation and management of emotions, as well as activity.

Sociability is on the negative pole.

Table 5. Centroides of groups

position	
	1
higher	.406
lower	-.349

Source: Work of authors based on research Nikić, Stamatović, Sućeska, 2017;

Based on the values and direction of the group centroides we can see that the managers in a higher position are on the positive pole of the discriminant function, and the managers in a lower position are on the negative pole. This result means that the higher-level managers show a higher level of emotional intelligence in perceiving and understanding emotions, regulation and management of emotions, and also their personality trait named Activity is higher than in any other group of the respondents.

The respondents in lower managerial positions show higher sociability in relation to the higher-level managers. The changes which have occurred in the last decade in the sphere of business in our environment are more than dramatic. Some old ideas, especially on social security and the right to work have been replaced by the requirement that employees constantly prove their “good run” on the competitive and demanding market. The situation in the sphere of agribusiness is not easier due to numerous changes in the conditions of privatization, European integration and globalization of the market. On the other hand, companies are more than ever aware that emotional self-conscious and capable managers are necessary, especially high-level managers, in order to successfully lead teams and organizations through stressful and uncertain situations.

Previous studies show that emotional intelligence is one of the most significant characteristics of higher levels of leadership (Goleman, Bojaci, Maki, 2006). Goleman believes that today a new profile of leaders is necessary more than ever. Will a company be ready enough to survive the challenges of the future largely depends on whether its leaders, especially top managers, are ready to regulate their own emotions in the conditions of major changes. These authors argue that today we need emotionally intelligent leaders who know how to recognize, understand and manage their turbulent emotions and are able to think rationally even in the conditions of great crisis. At the highest levels of leadership positions, nearly 90% of the necessary competencies for success and advancement at work are emotional and social in their nature. It has also been shown that the knowledge of emotions and “coping with them” are especially important for managers because they work in special social context with constant interaction with employees and clients (Salovey, Mayer, 1990).

In the previous research Palmer et al (Palmer, Walls, Burgess, Stough, 2001) found that emotional intelligence was correlated with several characteristics of transformational leadership, which also suggests that it may be an important component of effective leadership. In their opinion, emotional intelligence is an increasingly popular measure for assessing effective leadership, as well as an important tool for developing leadership skills. It has been shown, in similar studies, that effective managers are able to understand their emotions and moods, but also those of employees and clients in everyday complex interactions (Manning, 2003).

Recent research has shown that emotional intelligence is positively correlated with job satisfaction and performance of employees, especially in business related to food (Sy, Tram, O’Hara, 2016). According to Birwatkar (2016), success in business is not a quantum leap, but rather an accumulation of small changes arising from the persistence,

perseverance and passion to provide the best employee productivity in business with the help of emotional intelligence. The competencies of emotional intelligence are the key for moral development, as well as for general achievement and life success. It can be concluded that it is essential that companies create innovative programs and develop highly emotionally intelligent managers in order to achieve better results of employees (Altındağ, Kosedag, 2015).

The scale for measuring emotional intelligence (UEK-136, Takšić, Moharić, Munjas, 2006) has been used in other studies in Serbia. In the research from 2014 (Nikić, Travica, Mitrović) the results showed that managers on all three dimensions of emotional intelligence achieved higher scores in relation to employees, suggesting that it is important that companies encourage managers to develop their emotional competence. When examining gender differences, it was shown that women achieved better results compared to male colleagues on all three scales of emotional intelligence, which creates room for women employees to better use their business potentials (Nikić, Mitrović, 2015). This finding is consistent with the previous research on emotional intelligence (Day & Carroll, 2004; Palmer, Gignac, Monocha, Stough, 2005).

Personality traits are considered very important for successful leadership, and Zuckerman's 5 dimensions (neuroticism, impulsive sensation seeking, activity, sociability and aggressiveness) provide important information about the level of leaders' energy, their resistance to stressful situations, emotional maturity, self-confidence. In this study, the leaders of higher level have higher activity, which indicates that they are actively engaged in business but also prone to challenging and difficult tasks. The leaders in lower positions are more sociable, which indicates that they have better communication with employees.

The quality of interaction in teams of employees is significantly influenced by emotional intelligence and personality of managers. The study from 2014 (Nikić, Mitrović, Travica) showed that the respondents who had higher scores on all three dimensions of emotional intelligence showed higher activity and sociability and lower neuroticism and aggressiveness, which is of importance for teamwork. It was found that the respondents, who were more satisfied with their lives, were less neurotic and aggressive, and they better regulated and managed emotions. It was also found that people with high scores on emotional intelligence showed lower neuroticism and greater sociability (Nikić, Mirović, Travica, 2014). The research shows that there is a connection between emotional intelligence and personality traits of managers and their resistance to organizational changes (Vakola, Tsaousis, Nikolaou, 2004).

It has been obtained in this study that managers in higher positions achieve higher scores on emotional intelligence and are prone to an active attitude toward work and coping with the most difficult problems, which is in line with their duties. The lower-level managers show high sociability, which indicates that they are more focused on people, colleagues and end users, which is an important factor of job satisfaction as well as of the satisfaction of users and all those with whom managers come into contact.

Conclusion

Leaders with their performance can enhance hostile feelings and antagonism, or, despite difficulties, optimism and realistic assessment of the problem. These two approaches, often present in practice, indicate a hidden but important dimension of leadership - the emotional effect of what the leader says and does. Most employees are mostly relying on the leader's opinion and attitude considering the significant role of the leader's decisions. On the other hand, the matters of emotion are not given sufficient attention, given that emotions are considered too personal, and discussion on them inappropriate or intrusive.

Although most people observe that the demeanor of leaders - and the way they act and affect the others - plays a significant role in every organization, the issues of emotional climate in the organization only recently have been given attention. However, research in the field of emotions shows that emotional intelligence is important for responsible leadership, and leaders who use their EI skills show better results at different levels of management. Understanding the important role of emotions in the workplace distinguishes the best leaders from others - not only in terms of tangible results such as increased business success and retention of high-productive people, but also in terms of the very important psychological criteria, such as a better mood, motivation and commitment.

In this, as in many other studies, managers in higher positions show a greater ability to recognize and "cope with their own and other people's emotions" which is a significant characteristic of leadership skills. Managers in higher positions also have a more active attitude to work and a greater willingness to solve the most difficult problems, while managers in lower positions focus on communication and people, which is, on the other hand, important for success of the communication processes in business.

New studies are needed in different sectors to help leaders to improve their leadership skills in the field of agribusiness. Besides professional competencies, not less important is the acquisition of social and emotional skills: communication, self-management, decision making, teamwork and interpersonal relationships.

It is also important to do systematic research on emotional competencies and personality traits of leaders in agribusiness at various levels, including different activities.

On the other hand, it is important to introduce innovative programs that enhance development of emotional and social competencies of managers in all areas of agribusiness.

Literature

1. Altındağ, E., Köseadağı, Y. (2015): *The Relationship between Emotional Intelligence of Managers, Innovative Corporate Culture and Employee Performance*. International Conference on Communication in Multicultural Society, Procedia - Social and Behavioral Sciences, Vol. 210, No. 2, pp. 270-

- 282, ScienceDirect, Moscow, Russia.
2. Bar-On, R. (2006): *The Bar-On Model Of Emotional-Social Intelligence (ESI)*. Psicothema, Vol.18, pp. 13-25, University of Texas Medical Branch, Texas, USA.
 3. Bar-on, R., Parker, J. A. (2000): *Emotional and social intelligence: Insights from the Emotional Quotient Inventory (EQ-i)*. In R. Bar-On and J. D. A. Parker (Eds.), *Handbook of emotional intelligence*, pp. 363-388, Jossey-Bass, San Francisco, USA.
 4. Bar-On, R., Handley, R., Fund, S. (2005): *The Impact Of Emotional And Social Intelligence On Performance*. In Vanessa Druskat, Fabio Sala, and Gerald Mount (Eds.), *Linking emotional intelligence and performance at work: Current research evidence*, pp. 3-19, Lawrence Erlbaum, Mahwah, New Jersey, USA.
 5. Berson, Y., Yammarino, O. (2006): *Attachment style and individual differences in leadership perceptions and emergence*, *Journal of Social Psychology*, Vol. 146, No. 2, pp.165-82, Taylor, Francis, Philadelphia, USA.
 6. Birwatkar, V. (2016): *Echoes of Emotions in Organizational Learning*, Lambert, Academic Publishing. Moldova.
 7. Cvijanović, D., Trandafilović, S., Imamović, N. (2013): *Marketing concept in terms of agricultural enterprises development in transitional countries*. *Economics of Agriculture*, No. 1, pp. 113-123, Institute of Agricultural Economic, Belgrade, Serbia.
 8. Cvijanović, G., Dozet, G., Cvijanović, D. (2013): *Menadžment u organskoj biljnoj proizvodnji*. Monografija. Institut za ekonomiku poljoprivrede, Belgrade, Serbia.
 9. Day, A. L., Carroll, S. A. (2004): *Using an ability-based measure of emotional intelligence to predict individual performance, group performance, and group citizenship behaviours*, *Personality and Individual Differences*, *The Official Journal of the International Society for the Study of Individual Differences (ISSID)* 36, pp. 1443-1458, Western University, London, Ontario, Canada.
 10. Čukić, B. (2003): *Psihologija rada – usklađivanje čoveka i posla*, Istraživački centar za industrijski menadžment plus, Kruševac, Serbia.
 11. Goleman, D. (1996): *Emocionalna inteligencija*, Geopoetika, Belgrade, Serbia.
 12. Goleman, D. Bojancis, R. Maki, E. (2006): *Emocionalna inteligencija u liderstvu*, Adidžes, Novi Sad, Serbia.
 13. Manning, T. (2003). *Leadership across cultures: Attachment style influences*. *Journal of Leadership and Organizational Studies*, 9, pp. 20-30, SAGE Publishing, London, UK.
 14. Mayer, J. D., Salovey, P., Caruso, D. R. (2002): *Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT): User's manual*, Multi-Health Systems, Toronto, Canada.

15. Mayer, D. & Salovey, P. (1990): *Emotional intelligence*, Imagination, Cognition and Personality, vol. 9(3), pp. 185-211, Baywood Publishing Co., Inc San Francisco, USA.
16. Mayer, J. D., Caruso, D. R., Salovey, P. (1999): *Emotional Intelligence Meets Traditional Standards For Intelligence*, Intelligence, Vol. 27, pp. 267-298. University of New Hampshire, USA.
17. Nikić, G., Mitrović, M., Travica, V. (2014): *The Quality Of Business Communications Depending On The Attachment Style, Social Emotional Competencies And Personality Traits*, Industrija, Vol. 42, No. 4, pp. 79-97, Institut ekonomskih nauka, Belgrade, Serbia.
18. Nikic, G., Travica, V., Mitrovic, M. (2014): *Differences Between Employees And Managers Regarding Socio-Emotional Competencies*, Serbian Journal of Management, Vol. 9, No. 2, pp. 281-292, University in Belgrade, Bor, Serbia.
19. Nikić, G., Mitrović, M. (2015): *Emotional Intelligence Of The Employees In Serbia – Gender Differences*. Journal Of Women's Entrepreneurship And Education, JWE, 1-2 pp. 67-85, Institut ekonomskih nauka, Belgrade, Serbia.
20. Mayer, J. D., Roberts, R. D., Barsade, S. G. (2008): *Human abilities: Emotional intelligence*, Annual Review of Psychology, Vol. 59, pp. 507-536, University of Pennsylvania, USA.
21. O'Boyle, E. H., Humphrey, R. H., Pollack, J. M., Hawver, T. H., Story, P. A. (2010): *The Relation Between Emotional Intelligence And Job Performance: A Meta-Analysis*. Journal Of Organizational Behavior, DOI: 10.1002/job.714, John Wiley & Sons, New York, USA.
22. Palmer, B. R., Gignac, G., Monocha, R., Stough, C. (2005): *A psychometric evaluation of the Mayer-Salovey-Caruso Emotional Intelligence Test version 2.0*, Intelligence, Vol. 33, pp. 285-305, Elsevier, The University of Western Australia, Australia.
23. Palmer, B., Walls, M., Burgess, Z., Stough, C. (2001): *Emotional intelligence and effective leadership*, Leadership & Organization Development Journal, vol. 22 No. 1, pp.5-10, Published by MCB UP Ltd, UK.
24. Popper, M., Amit, K. (2009): *Influence of Attachment Style on Major Psychological Capacities to Lead*, The Journal of Genetic Psychology, Vol. 170, No. 3, pp. 244-267, Publisher: Taylor & Francis, UK.
25. Repar, L., Njaro, M., Par, V. (2012): *Management and leadership in agribusiness companies*, Journal of Central European Agriculture, Vol. 13, No. 1, pp. 109-1022, Publisher: Journal of Central European Agriculture, Croatia.
26. Sy, T., Tram, S., O'Hara, L. (2006): *Relation of employee and manager emotional intelligence to job satisfaction and performance*. Journal of Vocational Behavior Volume 68, Issue 3, pp 461-473. Elsevier, UK.
27. Takšić, V., Moharić, T., Munjas, R. (2006): *Emocionalna inteligencija: teorija*,

- operacionalizacija, primjena i povezanost s pozitivnom psihologijom*, Filozofski fakultet, Rijeka, Croatia.
28. Takšić, V. (2001): *Teorijsko ishodište i modeli emocionalne inteligencije*, Glasje, pp. 211–225, Faculty of Philosophy, Rijeka, Croatia.
 29. Takšić, V. (1998): *Validation of the Emotional Intelligence Construct*, Unpublished doctoral dissertation, University of Zagreb, Zagreb, Croatia.
 30. Thondike, E.L.(1920): *Reliability and Significance of Tests of Intelligence*, The Journal of Educational Psychology, vol. XI, American Psychological Association, USA.
 31. Vakola, M.,Tsaousis,I.,Nikolaou,I. (2004): *The role of emotional intelligence and personality variables on attitudes toward organisational change*, Journal of Managerial Psychology, Vol. 19 No. 2, pp.88–110. West Yorkshire, UK.
 32. Zuckerman, M., Michael K., Thornquist, M., Kiers, H. (1991): *Five (or three) robust questionnaire scale factors of personality without culture*, Personality and Individual Differences, Vol. 12, pp. 929-941, Elsevier, UK,
 33. Zuckerman, M. (2002): *Zuckerman-Kuhlman Personality Questionnaire (ZKPQ): An alternative five factorial model*. In B. DeRaad, and M. Peru-sini (Eds.), Big Five Assessment, pp. 377 - 396, Hogrefe and Huber Publishers, Seattle, USA.

EMOCIONALNE KOMPETENCIJE I OSOBINE LIČNOSTI MENADŽERA U SAVREMENOM AGROBIZNISU

Gordana Nikić⁴, Ljubiša Stamatović⁵, Azra Sućeska⁶

Apstrakt

Glavni cilj ovog rada je utvrđivanje razlika između menadžera u agrobiznisu, srednjeg i visokog ranga u odnosu na niže menadžerske pozicije u pogledu osobina ličnosti i emocionalne inteligencije. Istraživanje obuhvata 240 ispitanika iz Srbije. Struktura uzorka je heterogena, čine ga zaposleni i rukovodioci oba pola i različitog uzrasta. U ovom radu biće prikazani rezultati koji se odnose na 125 menadžera stalno zaposlenih u trgovinskom lancu prehrambene industrije Merkator Group. Za procenu emocionalne inteligencije korišćen je Upitnik emocionalne kompetentnosti (Takšić, Moharić, Munjas, 2006), a za procenu tipa ličnosti korišćen je Upitnik za procenu dominantnih osobina ličnosti ZKPQ (Zuckerman, 2002). Dobijeni rezultati ukazuju da menadžeri na višim pozicijama pokazuju viši nivo emocionalne inteligencije kada je upitanju uočavanje i razumevanje emocija, njihova regulacija i upravljanje njima, takođe im je izraženija osobina ličnosti nazvana Aktivitet u odnosu na drugu grupu ispitanika. Ispitanici koji su na nižim menadžerskim pozicijama pokazuju izraženiju socijabilnost u odnosu na menadžere sa viših pozicija.

Ključne reči: *menadžeri, agrobiznis, profil ličnosti, emocionalna inteligencija*

4 Docent, dr Gordana Nikić, Univerzitet Singidunum, Fakultet za turizam I hotelijerski menadžment, Kumodraška Ulica br. 261a, 11000 Beograd, Srbija, Telefon: +381 63 7365817, E-mail: gnikic@singidunum.ac.rs

5 Master, Ljubiša Stamatović, doktorske studije, Univerzitet Union, Beogradska Bankarska Akademija, Zmaj Jovina Ulica br. 3, 11000 Beograd, Srbija, Telefon: +381 61 2453 486, E-mail: ljubisastamatovic@gmail.com

6 Docent, dr Azra Sućeska, Univerzitet SUSU-SOUTH Ural, Rusija, Telefon: +381 66 234304, E-mail: azra.hanic@bba.edu.rs

FINANCIAL REPORTING OF COMPREHENSIVE INCOME IN THE FOOD AND BEVERAGE SECTOR IN THE REPUBLIC OF SERBIA

Vladimir Obradović¹, Nemanja Karapavlović²

Summary

The paper discusses financial reporting of comprehensive income of companies in the food and beverage sector in the Republic of Serbia. The aim of the research is to examine whether the introduction of the concept of net comprehensive income has brought significant information for users of financial statements. The analysis has been conducted on a sample of 132 companies from the mentioned sector on the basis of financial statements for 2014. We find that there is very high positive correlation between net income and net comprehensive income; that there is no statistically significant difference between net income and net comprehensive income; that there is no statistically significant difference between the return on equity calculated by using net income and the return on equity calculated by using net comprehensive income; and that net comprehensive income is more volatile in time than net income.

Key words: *net comprehensive income, net income, net other comprehensive income, food and beverage sector*

JEL: *M41, Q19*

Introduction

Financial reporting is an externally oriented segment of accounting information system dealing with presentation of financial statements and related information to different users. It arose as a response to information needs of users (Stefanović, 1993) and adapts to continuous changes in those needs. During the 20th century, financial reporting has evolved from a relatively simple practice primarily aimed at small groups of industrialists and financiers to a complex process important for many members of modern industrial society (Baker, Walage, 2000). The adaption of financial reporting to the changes in business environment during

1 Vladimir Obradović Ph.D., Assistant Professor, University of Kragujevac – Faculty of Economics, Đure Pucara Starog Street no. 3, Kragujevac, Serbia, Phone: +381 34 303 590, E-mail: vobradovic@kg.ac.rs

2 Nemanja Karapavlović M.Sc., Assistant, University of Kragujevac – Faculty of Economics, Đure Pucara Starog Street no. 3, Kragujevac, Serbia, Phone: +381 34 303 528, E-mail: nkarapavlovic@kg.ac.rs

the last decades has included introduction of new types of financial statements and changes in guidelines (rules, principles) for recognition and measurement of financial statements positions (Škarić-Jovanović, 2016).

One of the major recent changes in financial reporting of many companies in the Republic of Serbia is the imposition of obligation to present the amount and components of net comprehensive income. This obligation is a consequence of changes in International Accounting Standard 1: Presentation of Financial Statements. For the first time, the annual sets of financial statements of many entities (companies) in the Republic of Serbia for 2014 incorporate the Statement of other comprehensive income, beginning with net income, as reported in the Income statement, with addition of components of other comprehensive income in order to compute net comprehensive income. Although net comprehensive income is a relatively new concept, its foundations were set earlier, with the introduction of positions arising from non-owner transactions and events that are directly included in owners' equity but that are not part of net income (Obradović, Karapavlović, 2015). The occurrence of net comprehensive income denoted a departure from traditional approach in determining income based on focusing on revenues and expenses, and a reorientation to the approach based on focusing on assets and liabilities (Wilson, 2007). Net comprehensive income, as a new performance measure, broader than traditional net income, includes all the changes in owners' equity resulting from non-owner transactions and events.

The subject of research in this paper is the practices of financial reporting on net comprehensive income of companies in the food and beverage sector in the Republic of Serbia. The aim of the research is to examine whether, in the case of companies in this sector, changes in the way of presentation of income, in terms of introducing the new concept and components of income, has brought significant information for users of financial statements in comparison to the previously reported information. In order to examine the extent of the abovementioned changes, we analyze the relationship between net income and net comprehensive income with the intention to identify whether they are significantly different or not. In addition, we examine volatility over time of net income and net comprehensive income in order to come to the conclusion which one of them is more volatile, i.e., which one of them is subject to greater fluctuations over time.

With regard to the assumption that net comprehensive income is introduced to be a new performance measure with different informational value than the traditional net income, we formulated the research hypotheses as follows:

- H₁: There is no correlation between net income and net comprehensive income.
- H₂: There is statistically significant difference between net income and net comprehensive income.
- H₃: There is statistically significant difference between the return of equity computed by using net income as numerator and the return on equity computed by using net comprehensive income as numerator.
- H₄: Net comprehensive income is more volatile in time than net income.

The rest of the paper is structured in four sections. In the first section, we explain the research sample and methodology. In the second section, we discuss the origin, foundations and importance of comprehensive income. In addition, we present the results of previous empirical research. In the third section, we present the research results. In the final section, we present our conclusions.

Research sample and methodology

The research encompasses 132 companies in the Republic of Serbia that belong to the food and beverage sector. The analysis is based on the financial statements for 2014, which are available at the internet site of The Serbian Business Registers Agency (<http://www.apr.gov.rs>). The collected data is processed by using the IBM SPSS Statistics software package and Microsoft Excel. Financial statements for 2014 are of special importance, because of the fact that those financial statements are the first annual statements in which entities in the Republic of Serbia present the total as well as the components of net comprehensive income. In addition to data for 2014, the analyzed financial statements contain comparative data for the year before (2013), which is in accordance with IFRS. Sample structure is shown in *Table 1*.

In order to test the research hypotheses, we have used the next statistic techniques: descriptive statistics, dispersion measures and Wilcoxon Signed Ranks as a non-parametric alternative to paired-sample t-test. We have used confidence level (α) of 0.05 and 0.01 to determine statistical significance.

Table 1. Sample structure

	Number	Percentage share
<i>Prevailing activity</i>		
Production	128	96.97
Trade	4	3.03
<i>Size*</i>		
Micro	2	1.51
Small	34	25.76
medium-sized	51	38.64
Large	45	34.09
<i>Legal form</i>		
limited liability company	78	59.09
stock company	49	37.12
Cooperative	3	2.27
Entrepreneur	1	0.76
social enterprise	1	0.76
* Classification is based on the 2013 Accounting Law.		

Source: Authors' calculation

Literature review

The origin and theoretical background of comprehensive income

Comprehensive income is not a new concept (Foster, Hall, 1996; Reither, Smith, 1996; Munter, 1997). According to Foster and Hall (1996), the increasing use and importance of financial instruments and fair value as the basis for their measurement influenced the introduction of comprehensive income. Comprehensive income was formally introduced in accounting literature in 1980, in the Statement of Financial Accounting Concepts (SFAC) No. 3: Elements of Financial Statements of Business Enterprises published by the U.S. Financial Accounting Standards Board (FASB). In the mentioned document (paragraph 56), comprehensive income is defined as “the change in equity (net assets) of a business enterprise during a period resulting from transactions and other events and circumstances from non-owner sources”. It was introduced to be a broader measure of performance than net income by including all the changes in owners’ equity during a period, except those referring to owners’ investments and distribution to owners (Yen, Hirst, Hopkins, 2007). In June 1997, the FASB published the Statement of Financial Accounting Standards (SFAS) No. 130: Reporting Comprehensive Income, which requires reporting of comprehensive income to be a part of regular financial reporting (Brauchle & Reither, 1997) in the form of a statement on the same level of importance as the other financial statements (Yen, Hirst, Hopkins, 2007). SFAS 130 allowed comprehensive income to be displayed in three ways: (1) as the last item of a single statement of comprehensive income, (2) in a separate financial statement supplementing income statement, or (3) in the statement of changes in owners’ equity (Rees, Shane, 2012).

Reporting of comprehensive income, in its current form, was introduced in International Financial Reporting Standards (IFRS) in September 2007, when the revised International Accounting Standard (IAS) 1: Presentation of Financial Statements was issued (Rees, Shane, 2012). IAS 1 defines comprehensive income in the substantially same manner as SFAC 3. According to IAS 1, entities can choose between presenting (a) a single statement of comprehensive income displaying net income (profit or loss) and components of other comprehensive income, or (b) two statements – the statement of net income (profit or loss) and the statement of comprehensive income beginning with net income (profit or loss) and displaying components of other comprehensive income. The version of IAS 1 applicable before the aforementioned changes, like the U.S. SFAS 130, allowed the components of other comprehensive income to be displayed within statement of changes in owners’ equity. However, that option was removed in 2007, with a consequence in a clearer separation of owner and non-owner changes in equity (Deloitte Touche Tohmatsu, 2007). The same option was also removed from the U.S. Generally Accepted Accounting Principles (GAAP) (Eaton, Easterday, Rhodes, 2013). The consensus on two identical options for displaying comprehensive income is one of many steps towards the convergence between IFRS and the U.S. GAAP (Henry, 2011).

The specified definition of comprehensive income is based on equity (net assets) as a category of the statement of financial position (balance sheet). This indicates that the statement of financial position takes precedence over the income statement (profit or loss statement),

which was the primary financial statement in the periods of domination of historical cost accounting. The concept of comprehensive income is based on the premise that recognition and measurement of assets and liabilities are the key financial reporting issues, and that comprehensive income can be understood as a total of realised trade transactions and value changes (Walton, 2011).

Comprehensive income in net amount, i.e., after taxation, is a sum of (1) net income (profit or loss), reflecting the amount after deducting income tax, and (2) net other comprehensive income, i.e., other comprehensive income after tax on other comprehensive income. Net income, in general, is a measure of management efficiency in procurement of inputs, transforming inputs into outputs and selling outputs to consumers. Net income shows “the amount of value added in a business cycle beginning with the procurement of production factors and ending with the sale of products to customers. This value added (income) is the basis for assessing performance of management in the realization of the business plan” (Škarić-Jovanović, 2010, 106). Net income is a sum of operating income, financial income and other income, less income tax. Net income calculated in accordance with current IFRS, as opposed to net income in earlier periods, includes the effects of changes in fair value (gains or losses) of the items of statement of financial position, such as investment property, biological assets, and financial assets and liabilities held for trading (except the changes in fair value of liabilities held for trading resulting from changes in credit risk, which are components of other comprehensive income – Melville, 2011). Regardless of the fact that changes in fair value of those assets and liabilities are not realised in current period, they are expected to be confirmed in the market in the short term. The inclusion of such unrealised items in net income is justified by the fact that ability of managers to make gains on changes in value of certain assets and liabilities could be useful for the assessment of managers’ efficiency, in addition to their performance in core activities and performance in goods and services markets. Expected gain from the changes in value of the mentioned items is exactly one of the key reasons for their holding. Some assets (e.g., non-investment property, plant and equipment) are purchased to be used, so changes in their values are of secondary importance for the assessment of managers’ efficiency.

Net other comprehensive income reflects the changes in owners’ equity during a period arising from non-owner transactions (transactions other than contributions by and distributions to owners) that are directly included in owners’ equity and that do not affect net income. It includes changes in the value of assets and liabilities that are not held because of expected value changes. Changes in revaluation surplus related to property, plant, equipment and intangible assets, remeasurements of defined benefit plans, and gains or losses arising from translating financial statements of a foreign operation are some examples of components of other comprehensive income. Components of other comprehensive income can be divided into (a) those that can be subsequently (in future periods) included in net income, and (b) those that cannot be subsequently included in net income. Subsequent inclusion of components of other comprehensive income into net income, frequently referred to as “reclassification” (Needles, Powers, 2013), occurs in a moment of disposition of corresponding assets or settlement or transfer of liabilities, when gains or losses become realised. The reclassification

is necessary in order to “avoid double counting items in comprehensive income that also appear in net income and that have been included in comprehensive income in a previous period” (Munter, 1997).

Net comprehensive income is more complete performance measure than net income, because it better reflects economic events during an accounting period. However, the International Accounting Standards Board (IASB) still recognizes the importance of net income and is committed to maintaining its importance (Gazzola, Amelio, 2014). The IASB considers net income and net comprehensive income as complementary performance measures and, therefore, does not intend to replace net income with net comprehensive income (Hoogervorst, 2012b). According to IFRS, net income is still the basis for computation of earnings per share, and no change is anticipated (Lurie, Shuv, 2010). Le Manh-Béna (2010) stresses that preparers and users of financial statements still prefer traditional concept of net income and do not perceive a need to redefine that concept.

Smith (2010, 99) argues that comprehensive income is a product of “a more comprehensive calculation of gains earned by business during a reporting period”. Choi, Zang (2006) and Choi, Das, Zang (2007) point out that comprehensive income is useful in predicting changes in net income of the next period. Hoogervorst (2012a) stresses that it is important for investors to know which gains or losses, even those that are still not realised, exist in the balance sheet. However, Maines, McDaniel (2000) point out that investors may be confused because they do not always know which of the two performance measures (net income or net comprehensive income) is more appropriate in specific circumstances. Botzem (2012) argues that reporting of comprehensive income leads to a decrease in importance of operating activities for assessing a company’s performance in comparison to value changes. The completeness of comprehensive income is considered its main advantage, while including unrealized gains is considered its main disadvantage. However, as stated above, net income may also include unrealized gains leading to an unreasonable increase in managers’ fees and dividends. Unrealised gains should not be ignored because they can be dangerous to a company’s financial health (Hoogervorst, 2014).

Reither, Smith (1996) argue that the introduction of the concept of comprehensive income did not lead to presentation of some new information, in the sense that the information that were available before is only presented in another manner thus becoming more transparent and accessible to financial statements users. Eaton, Easterday, Rhodes (2013) generally support this attitude. Starting from the objective of financial reporting, Keating (1999) firmly supports comprehensive income, arguing that the emphasis on comprehensive income is of great importance for making investment and credit decisions, because the existence of unrealized gains is an indicator of stability as a motivating factor in decision making process. The same author also highlights that comprehensive income facilitates prediction of a company’s future cash flows, since unrealized components of comprehensive income could be realised in future periods.

Škarić-Jovanović (2010) argues that, if a significant portion of assets and liabilities is measured at fair value, net assets will be significantly more volatile from period to period in comparison to net assets under the concept of historical cost, because of changes in market

prices (fair values). It implies that comprehensive income is expected to be more volatile in time than net income. Volatility resulting from changes in market prices and subjectivity in measuring fair values are the main arguments of advocates of the concept of historical cost against fair value, while supporters of fair value consider volatility as a correct reflection of economic reality (Hoogervorst, 2015). Bradbury (2016) stresses that more pronounced volatility of components of other comprehensive income than net income is one of the reasons why comprehensive income should not be presented in a single performance report, although IFRS allow such a presentation.

Previous empirical research on comprehensive income

Zülch and Pronobis (2010) note that, in most studies on comprehensive income, it is compared with net income in terms of relevance for predicting stock prices. The results of such studies are different, but more studies emphasize the superiority of net income. The research of previously mentioned authors, which observed companies included in the main index of the German stock exchange (HDAX) from 1998 to 2007, shows that comprehensive income is not superior to net income in predicting company performance. Tsuji (2013) observe financial statements of companies from the primary listing of the Tokyo Stock Exchange and finds that comprehensive income is not superior to other forms of income and cash flows for predicting future return on equity. Cheng, Cheung, Gopalakrishnan (1993) find that the informative value of operating income (as a layer of net income) and net income are significantly higher than the informative value of comprehensive income. Dhaliwal, Subramanyam, Trezevant (1999) and Mechelli, Cimini (2014) do not find that comprehensive income is more relevant than net income. On the other hand, Gazzola, Amelio (2014), on the basis of the analysis of the consolidated financial statements of companies listed on the primary market of the Czech stock exchange from 2010 to 2012, conclude that comprehensive income has the informative value and that it provides additional information for assessing financial performance. The research of Yousefi Nejad, Embong, Ahmad (2014), conducted on a sample of 764 companies listed on the primary market of the Malaysian stock exchange from 2011 to 2013, shows that components of other comprehensive income are related to share prices. Kanagaretnam, Mathieu, Shehata (2009) find that comprehensive income is more tightly related to share prices and returns than net income. However, Smith, Tse (1998) and Pășcan (2014) find that net income is more tightly related to share prices, and thus with market value of companies, than comprehensive income.

On the basis of the analysis of 90 companies in the period from 1996 to 1998, Ketz (1999) concludes that net income and comprehensive income do not differ significantly in general. The same author notes that the research neither confirms nor rejects the claims (1) that comprehensive income is relevant to users of financial statements and (2) that it is reasonable to include the statement on comprehensive income into a set of regular financial statements. Ngmenipuo (2015) and Pășcan (2014) find no statistically significant difference between net income per share and comprehensive income per share. Obradović, Karapavlović (2015) find that, in the case of companies in the

Republic of Serbia included in the BELEXline index in 2014, generally there is no statistically significant difference between net income and net comprehensive income, i.e., that components of net other comprehensive income do not make net comprehensive income substantially different from net income. They stress that differences between net income and net comprehensive income are very significant in certain cases, but such cases are relatively rare.

Khan, Bradbury (2014, 2015) find that comprehensive income is significantly more volatile in time than net income in the cases of non-financial companies in the United States of America and New Zealand. Based on the research of attitudes of financial statements preparers, Smith, Tse (1998) point out that items of other comprehensive income, increase the volatility of comprehensive income, even though the company's risk remains unchanged. Henry (2011) also finds that components of comprehensive income are more volatile than net income, which is proven by comparing their standard deviations. On the other hand, a high volatility can lower share prices and increase costs of capital.

Research results

The analysis reveals that the changes in revaluation surplus and gains or losses on financial instruments available for sale are the most frequent components of other comprehensive income in the observed companies. These components can be found in the Statement of other comprehensive income of 28 (21.21%) and 24 (18.18%) companies, respectively. Actuarial gains or losses on defined employee benefit plans are present in 14 companies (10.61%). Gains and losses on investments in equity instruments are present in only one company, and the same is the case with gains or losses on instruments of cash flow hedge. The rest three components provided in the official form of the Statement of other comprehensive income (share in other comprehensive income of associates, gains or losses on translation of financial statements of foreign operations, and gains or losses on hedges of net investments in foreign operations) are not present in any of the observed companies.

The observed companies have one component of other comprehensive income on average, and none of the companies has more than three components. In the case of 15 companies (11.36%), there is the position of tax on comprehensive income, while remaining companies do not have that position, which means that their gross comprehensive income and net comprehensive income are equal. In the case of 80 observed companies (60.61%), there are no components of other comprehensive income, which means that net comprehensive income is equal to net income.

In the case of 25 observed companies (18.94%), net other comprehensive income is negative (loss), which means that net comprehensive income is less than net income. In the case of 27 companies (20.45%), net other comprehensive income is positive (profit), which means that net comprehensive income is higher than net income. In four cases (3.03%), net income and net comprehensive income have the opposite sign

– in three cases net comprehensive income has a positive value and net income has a negative value, while in one case the situation is quite opposite. In 113 cases (85.61%), net other comprehensive income is in the range from -10% to +10% of the absolute value of net income.

In order to test the first research hypothesis, we have conducted a correlation analysis. The results presented in *Table 2*. indicate that there is a very strong, positive and statistically significant ($p = 0.000$) correlation between net income and net comprehensive income, which means that we should reject the first hypothesis.

Table 2. Correlation matrix

		net income	net comprehensive income
net income	Pearson Correlation	1	0.980**
	Sig. (2-tailed)		0.000
	N	132	132
net comprehensive income	Pearson Correlation	0.980**	1
	Sig. (2-tailed)	0.000	
	N	132	132
** Correlation is significant at the 0.01 level (2-tailed).			

Source: Authors' calculation

A more detailed analysis based on segmenting the sample according to the company size shows that the correlation between net income and net comprehensive income is the strongest for large companies (0.997; $p = 0.000$) and it is also very strong for medium-sized companies (0.956; $p = 0.000$). In both cases, the correlation is positive. However, the correlation is medium and negative for small companies (-0.467; $p = 0.005$). Because of very small number of micro companies in our sample, the results of analyses for companies of this size cannot be considered representative. The analysis based on segmenting the sample according to the company legal form shows that the correlation between net income and net comprehensive income is stronger for limited liability companies (0.994; $p = 0.000$) than for stock companies (0.968; $p = 0.000$). The results of the correlation analysis for companies of other legal forms are not sufficiently representative or such analysis cannot be performed because of small number of those companies in the sample.

In order to determine whether parametric test is applicable for examining the second research hypothesis, we perform normality tests for both net income and net comprehensive income. The results of those tests are shown in *Table 3*. Since the sample is higher than 50 ($n = 132$), we rely to the statistical significance of Kolmogorov-Smirnov tests, which is less than 0.05 in both cases. We conclude that both net income and net comprehensive income are not normally distributed. Therefore, we use the non-parametric Wilcoxon Signed Ranks Test, the results of which are shown in *Table 4*. The abovementioned test, in fact, examines whether the inclusion of components of other comprehensive income significantly change performance measure.

Table 3. Normality tests for net income and net comprehensive income

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
net income	0.227	132	0.000	0.703	132	0.000
net comprehensive income	0.229	132	0.000	0.716	132	0.000

Source: Authors' calculation

Table 4. Wilcoxon Signed Ranks Test for the difference between net income and net comprehensive income

	net comprehensive income – net income
Z	-1.612
Asymp. Sig. (2-tailed)	0.107

Source: Authors' calculation

As the significance of Wilcoxon Signed Ranks is higher than 0.05, we conclude that there is no statistically significant difference between net comprehensive income and net income. It means that we should reject the second hypothesis. The measure of effect size r of 0.099 denotes a small difference between net comprehensive income and net income according to Cohen's criteria (Pallant, 2011). The difference is also not statistically significant in all mentioned sample segments (small, medium-sized and large companies; limited liability and stock companies).

In order to test the third research hypothesis, two indicators of return on equity (ROE) are computed for each sample company – ROE_{NI} and ROE_{NCI} . ROE_{NI} is computed by dividing net income with average owners' equity, while ROE_{NCI} is computed by dividing net comprehensive income with average owners' equity. Normality tests (Table 5.) show that empirical distributions of both ROE_{NI} and ROE_{NCI} do not approximate to normal, which means that parametric test are not eligible. Therefore, we use non-parametric Wilcoxon Signed Ranks Test. The significance of this test (Table 6.) is higher than 0.05, which means that there is no statistically significant difference between ROE_{NCI} and ROE_{NI} . Therefore, the third hypothesis should be rejected. The measure of effect size r of 0.035 denotes a small difference between the indicators. The difference is not statistically significant in all the observed sample segments.

Table 5. Normality tests for ROE_{NI} and ROE_{NCI}

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
ROE_{NI}	0.344	132	0.000	0.308	132	0.000
ROE_{NCI}	0.340	132	0.000	0.318	132	0.000

Source: Authors' calculation

Table 6. Wilcoxon Signed Ranks Test for difference between ROE_{NCI} and ROE_{NI}

	$ROE_{NCI} - ROE_{NI}$
Z	-0.574
Asymp. Sig. (2-tailed)	0.566

Source: Authors' calculation

The results of statistical tests used for examining the first three hypotheses indicate that, in general, net income as a traditional performance measure and net comprehensive income as a new performance measure do not differ significantly in the case of companies in the food and beverage sector in the Republic of Serbia. However, it does not mean that the difference is not significant in all the observed companies. In that regard, the extreme case is the company in the sample whose net loss of 5,520 RSD transforms into net comprehensive profit of 338,561 RSD after including components of other comprehensive income and deducting tax on comprehensive income.

In order to test the fourth research hypothesis, we have firstly computed changes in both net income and net comprehensive income for each sample company as differences between the amounts in 2014 and 2013. Then, we have computed standard deviations and variances of those changes. As *Table 7* shows, standard deviation and variance of net comprehensive income are higher than standard deviation and variance of net income, which means that net comprehensive income is more volatile than net income. The results show that we should not reject our fourth hypothesis.

Table 7. Standard deviations and variances of changes in net income and net comprehensive income

	n	Std. deviation	Variance
change in net income	132	702,819.89	493,955,778,427.66
change in net comprehensive income	132	790,548.09	624,966,289,221.51

Source: Authors' calculation

Conclusion

The research in this paper reveals that, in the case of companies in the food and beverage sector in the Republic of Serbia, there is a high positive correlation between net income and net comprehensive income, and that the difference between net income and net comprehensive income is not considerably significant. It can be concluded that components of net other comprehensive income do not make net comprehensive income substantially different from net income. About 60% of companies in the sample do not have any component of net other comprehensive income, which means that net income and net comprehensive income of those companies are equal. This suggests that companies in the food and beverage sector in the Republic of Serbia mainly do not reevaluate their items of intangible assets, property, plant and equipment, i.e., that they usually measure the aforementioned items of assets by using historical cost model. The observed companies, on average, have one component of other comprehensive income, and none of them has more than three components. Changes in

revaluation surplus and gains/losses on financial instruments available for sale are the most frequent components of other comprehensive income. In addition, there is no statistically significant difference between the return on equity calculated by using net income as numerator and the return on equity calculated by using net comprehensive income as numerator. The foregoing indicates that, in general, there have been no significant changes in performance measurement in the food and beverage sector in the Republic of Serbia, because net comprehensive income as a new performance measure is not significantly different from net income as the traditional, but still available, performance measure. However, in individual cases, net comprehensive income may be very different from net income. The research results also show that net comprehensive income is more volatile in time than net income, which is in line with the expectations in the theory and the results of previous empirical studies. Since net comprehensive income is more volatile than net income and since the two performance measures can differ significantly in some cases, users of financial statements of companies in the food and beverage sector in the Republic of Serbia should take into account both performance measures when assessing past performance and predicting future performance.

References

1. Baker, C.R., Wallage, P. (2000): *The Future of Financial Reporting in Europe: Its Role in Corporate Governance*, The International Journal of Accounting, Vol. 35, No. 2, pp. 173-187, Elsevier.
2. Botzem, S. (2012): *The Politics of Accounting Regulation: Organizing Transnational Standard Setting in Financial Reporting*, Edward Elgar Publishing Limited, Cheltenham, England.
3. Brauchle, G.J., Reither, C.L. (1997): *SFAS No. 130: Reporting Comprehensive Income*, The CPA Journal, Vol. 67, No. 10, The New York State Society of Certified Public Accountants, New York, USA, Available at: <http://www.cpajournal.com/1997/1097/features/F421097.htm> (date of access 8/09/2015)
4. Bradbury, M.E. (2016): *Discussion of 'Other comprehensive income: a review and directions for future research'*, Accounting and Finance, Vol. 56, Issue 1, pp. 47-58, Wiley, Carlton, Australia.
5. Cheng, C.S.A., Cheung, J.L., Gopalakrishnan, V. (1993): *On the Usefulness of Operating Income, Net Income and Comprehensive Income in Explaining Security Returns*, Accounting and Business Research, Vol. 23, No. 91, pp. 195-203, Institute of Chartered Accountants in England and Wales, London, United Kingdom.
6. Choi, J.H., Zang, Y. (2006): *Implications of Comprehensive Income Disclosure For Future Earning and Analysts' Forecasts*, Seoul Journal of Business, Vol. 12, No. 2, Singapore Management University, Singapore, pp. 77-109. Available at: http://ink.library.smu.edu.sg/cgi/viewcontent.cgi?article=1162&context=soa_research (date of access 14/06/2016)
7. Choi, J.H., Das, S., Zang, Y. (2007): *Comprehensive Income, Future Earning, and Market Mispricing*, Working Paper: Research Collection School of Accountancy,

- Singapore Management University, Singapore, Available at: http://ink.library.smu.edu.sg/cgi/viewcontent.cgi?article=1161&context=soa_research (date of access 11/09/2015)
8. Delloitte Touche Tohmatsu (2007): *Revised Standard on presentation of financial statements*, London, England, Available at: <http://www.casplus.com/pubs/files/0709ias1revised.pdf> (date of access 02/07/2015)
 9. Dhaliwal, D., Subramanyam, K.R., Trezevant, R. (1999): *Is comprehensive income superior to net income as a measure of firm performance?*, Journal of Accounting and Economics, Vol. 26, Issues 1-3, pp. 43-67, Elsevier BV, Amsterdam, Netherlands.
 10. Eaton, T.V., Easterday, K.E., Rhodes, M.R. (2013): *The Presentation of Other Comprehensive Income: FASB's Recent and Proposed Changes*, The CPA Journal, Vol. 83, No. 3, pp. 32-35, The New York State Society of Certified Public Accountants, New York, USA.
 11. Foster, N., Hall, N. (1996): *Reporting Comprehensive Income*, The CPA Journal, Vol. 66, No. 10, The New York State Society of Certified Public Accountants, New York, USA, Available at: <http://www.cpajournal.com/1996/1096/features/Reportin.htm> (date of access 08/09/2015)
 12. Gazzola, P. & Amelio, S. (2014): *Is total comprehensive income or net income better for the evaluation of companies' financial performance?*, Ekonomická revue, Vol. 17, No. 1, pp. 39-51, Faculty of Economics, Ostrava, Czech.
 13. Henry, E. (2011): *Presentation of Comprehensive Income: Another (Small) Step Toward Convergence*, The Journal of Corporate Accounting & Finance, Vol. 23, Issue 1, pp. 85-90. John Wiley & Sons, Inc., Hoboken NJ, USA.
 14. Hoogervorst, H. (2012a): *The Imprecise Nature of Accounting: Questions on Measurement, Standard Setting and the IASB's Course for the Future*, The CPA Journal, Vol. 82, No. 8, pp. 11-13, The New York State Society of Certified Public Accountants, New York, USA.
 15. Hoogervorst, H. (2012b): *Dispelling myths about IFRS: Introductory remarks by Hans Hoogervorst, Chairman of the International Accounting Standards Board*, Available at: <http://www.ifrs.org/Alerts/PressRelease/Documents/2012/Dispelling-myths-about-IFRS-Hans-Hoogervorst-2012.pdf> (date of access 10/09/2015)
 16. Hoogervorst, H. (2014): *The dangers of ignoring unrealised income*, Speech by Hans Hoogervorst, International Accounting Standards Board Chairman, IFRS Conference Tokyo, Available at: <http://www.ifrs.org/Alerts/Conference/Documents/2014/Speech-Hans-Hoogervorst-Dangers-of-ignoring-unrealised-income-September-2014.pdf> (date of access 15/06/2016)
 17. Hoogervorst, H. (2015): *Historical cost versus fair value measurement: les extrêmes se rejoignent*, International Accounting Standards Board Speech: IFRS Conference, Paris, Available at: <http://www.ifrs.org/alerts/conference/documents/2015/hans-hoogervorst-speech-paris-june-2015.pdf> (date of access 22/03/2016)
 18. Kanagaretnam, K., Mathieu, R., Shehata, M. (2009): *Usefulness of comprehensive*

- income reporting in Canada*, Journal of Accounting and Public Policy, Vol. 28, Issue 4, pp. 349-365, Elsevier Inc., New York, USA.
19. Ketz, E. (1999): *Comprehensive Income: What Do the Numbers Disclose?*, The Journal of Corporate Accounting & Finance, Vol. 10, Issue 4, pp. 79-96, John Wiley & Sons, Inc., Hoboken NJ, USA.
 20. Khan, S., Bradbury, M.E. (2014): *Volatility and risk relevance of comprehensive income*, Journal of Contemporary Accounting & Economics, Vol. 10, Issue 1, pp. 76-85, Elsevier Ltd.
 21. Khan, S., Bradbury, M.E. (2015): *The volatility of comprehensive income and its association with market risk*, Accounting & Finance, Early View (Online Version of Record published before inclusion in an issue), Wiley, Carlton, Australia.
 22. Le Manh-Béna, A. (2010): *Is comprehensive income required by IAS 1 relevant for users? A review of the literature*, Available at: <https://halshs.archives-ouvertes.fr/halshs-00494511/document> (date of access 02/07/2015)
 23. Lurie, E., Shuv, S. (2010): *Returning the Relevancy of the P&L: A Proposed Model*, The CPA Journal, Vol. 80, No. 12, pp. 22-27, The New York State Society of Certified Public Accountants, New York, USA.
 24. Maines, L.A., McDaniel, L. (2000): *Effects of Comprehensive-Income Characteristics on Nonprofessional Investors' Judgments: The Role of Financial-Statement Presentation Format*, The Accounting Review, Vol. 75, No. 2, pp. 179-207, American Accounting Association, Sarasota FL, USA.
 25. Mechelli, A., Cimini, R. (2014): *Is Comprehensive Income Value Relevant and Does Location Matter? European Study*, Accounting in Europe, Vol. 11, Issue 1, pp. 59-87, Routledge, Abingdon, United Kingdom.
 26. Melville, A. (2011): *International Financial Reporting Standards: A Practical Guide (3rd ed.)*, Pearson Education Limited, Harlow, England.
 27. Munter, P. (1997): *New Standards on Segment Reporting and Comprehensive Income*, The Journal of Corporate Accounting and Finance, Vol. 9, No. 1, pp. 117-125, John Wiley & Sons, Inc., Hoboken NJ, USA.
 28. Needles, B.E., Powers, M. (2013): *International Financial Reporting Standards: An Introduction*, South-Western, Cengage Learning, Mason, USA.
 29. Ngmenipuo, I.M. (2015): *The Impact of Comprehensive Income Reporting on Financial Performance of Ghanian Firms with Public Accountability*, International Journal of Economics, Commerce and Management, Vol. 3, Issue 3, United Kingdom, Available at: <http://ijecm.co.uk/wp-content/uploads/2015/03/3330.pdf> (date of access 11/09/2015)
 30. Obradović, V., Karapavlović, N. (2015): *Finansijsko izveštavanje o ukupnom dobitku ili gubitku – slučaj nefinansijskih kompanija iz indeksne korpe BELEXline*, Računovodstvo, 59(4), str. 49-64, Savez računovođa i revizora Srbije, Beograd, Srbija.

31. Pallant, J. (2011): *SPSS – Priručnik za preživljavanje (Prevod 4. izdanja)*, Mikro knjiga, Beograd, Srbija.
32. Pășcan, I. (2014): *Does comprehensive income tell us more about an entity's performance compared to net income? Study on Romanian listed entities*, *Procedia Economics and Finance*, Vol. 15, pp. 1077-1082, Elsevier.
33. Rees, L.L., Shane, P. B. (2012): *Academic Research and Standard-Setting: The Case of Other Comprehensive Income*, *Accounting Horizons*, Vol. 26, No. 4, pp. 789-815, American Accounting Association, Sarasota FL, USA.
34. Reither, C.L., Smith, P.A. (1996): *Comprehensive Income: How To Apply the Rules of FASB's Recent Exposure Draft*, *The Journal of Corporate Accounting & Finance*, Vol. 7, Issue 4, pp. 29-38, John Wiley & Sons, Inc., Hoboken NJ, USA.
35. Reither, C.L., Brauchle, G.J. (1997): *FASB Issues New Standard On Reporting Comprehensive Income*, *The Journal of Corporate Accounting & Finance*, Vol. 9, Issue 1, pp. 1-8, John Wiley & Sons, Inc., Hoboken NJ, USA.
36. Smith, P.A., Tse, S. (1998): *Reporting Comprehensive Income: Does It Really Affect Stock Prices?*, *The Journal of Corporate Accounting & Finance*, Vol. 9, Issue 4, pp. 75-86, John Wiley & Sons, Inc., Hoboken NJ, USA.
37. Smith, B.P. (2010): *Introductory Financial Accounting and Reporting*, McGraw-Hill Education, Maidenhead, England.
38. *Statement of Financial Accounting Concepts No. 3: Elements of Financial Statements of Business Enterprises*, Financial Accounting Standards Board, 1980, USA.
39. Stefanović, R. (1993): *Finansijsko izveštavanje kao osnova za donošenje odluka – kvalitativni aspekt*, *Knjigovodstvo*, 38(12), str. 9-15, Savez računovođa i revizora Srbije, Beograd, Srbija.
40. Škarić-Jovanović, K. (2010): *Normativna osnova finansijskog izveštavanja i finansijska kriza*, *Acta Economica*, 8(12), str. 103-124, Ekonomski fakultet Univerziteta u Banjoj Luci, Banja Luka, Republika Srpska.
41. Škarić-Jovanović, K. (2016): *Uticaj promjena u poslovnom okruženju i normativnoj osnovi finansijskog izveštavanja na iskaznu moć mjerila finansijskih performansi kompanija*, *Acta Economica*, 14(24), str. 31-51, Ekonomski fakultet Univerziteta u Banjoj Luci, Banja Luka, Republika Srpska.
42. Tsuji, C. (2013): *Comprehensive Income and Stock Return: Evidence from the Tokyo Stock Exchange*, *Journal of Management and Sustainability*, Vol. 3, No. 3, pp. 142-147, The Canadian Center of Science and Education, Toronto, Canada.
43. Walton, P. (2011): *An Executive Guide to IFRS: Content, Costs and Benefits to Business*, John Wiley & Sons, Ltd., Chichester, United Kingdom.
44. Wilson, A. (2007): *The relevance and reliability of fair value measurement*, in: Walton, P. (Ed.). *The Routledge Companion to Fair Value and Financial Reporting*, pp. 196-209, Routledge, Abingdon and Oxon, USA and Canada.
45. Yen, A.C., Hirst, E., Hopkins, P.E. (2007): *A Content Analysis of the Comprehensive*

- Income Exposure Draft Comment Letters*, Research in Accounting Regulation, Vol. 19, pp. 53-79, J A I Press Inc., New York, USA.
46. Yousefi Nejad, M., Embong, Z., Ahmad, A. (2014): *Value Relevance of Other Comprehensive Income*, International Management Accounting Conference 7: 2-3 December 2014, University Kebangsaan Malaysia, Malaysia, Available at: <http://conference.ukm.my/IMAC7/IMAC7/paper/viewFile/2285/10> (date of access 11/09/2015)
47. Zülch, H., Pronobis, P. (2010): *Comprehensive Income and Its Individual Components under IFRS*, HHL Working Paper No. 95, Leipzig, Germany, Available at: <http://www.hhl.de/fileadmin/texte/publikationen/arbeitspapiere/hhlap0095.pdf> (date of access 11/07/2015)

FINANSIJSKO IZVEŠTAVANJE O UKUPNOM REZULTATU U SEKTORU HRANE I PIĆA U REPUBLICI SRBIJI

Vladimir Obradović³, Nemanja Karapavlović⁴

Apstrakt

U radu se razmatra finansijsko izveštavanje o neto ukupnom rezultatu preduzeća u sektoru hrane i pića u Republici Srbiji. Cilj istraživanja je da se ispita da li je uvođenje koncepta neto ukupnog rezultata donelo značajne informacije za korisnike finansijskih izveštaja. Analiza je sprovedena na uzorku od 132 preduzeća iz pomenutog sektora, na bazi finansijskih izveštaja za 2014. godinu. Utvrđeno je da između neto rezultata i neto ukupnog rezultata postoji veoma visoka pozitivna korelacija; da se neto rezultat i neto ukupan rezultat statistički ne razlikuju značajno; da ne postoji statistički značajna razlika između stope prinosa na sopstvena sredstva izračunate na osnovu neto rezultata i stope prinosa na sopstvena sredstva izračunate na osnovu neto ukupnog rezultata; i da je neto ukupan rezultat promenljiviji u vremenu nego neto rezultat.

Ključne reči: *neto ukupan rezultat, neto rezultat, neto ostali rezultat, sektor hrane i pića*

3 Docent, dr Vladimir Obradović, Univerzitet u Kragujevcu – Ekonomski fakultet, Đure Pucara Starog 3, Kragujevac, Srbija, Telefon: +381 34 303 590, E-mail: vobradovic@kg.ac.rs

4 Master ekonomista, Nemanja Karapavlović, Asistent, Univerzitet u Kragujevcu – Ekonomski fakultet, Đure Pucara Starog 3, Kragujevac, Srbija, Telefon: +381 34 303 528, E-mail: nkarapavlovic@kg.ac.rs

CONSUMER ATTITUDES ON BUYING FISH IN BANJA LUKA*Aleksandar Ostojić¹, Nebojša Savić², Željko Vaško³***Abstract**

The objective of research presented in the paper is to determine the basic parameters affecting the purchase, supply and consumption of fish in the market of the city of Banja Luka (Bosnia and Herzegovina). The survey was conducted on a random sample of 100 respondents. The data were analyzed by univariate (frequency and distribution) and two-variant statistical methods and cross-tabulation. The conclusions are that for the purchase of fish, freshness is a primary factor, which is to be expected given the type of product as well as the origin, and price and type of fish. Out of all respondents, 41% said they were not informed enough about the fish as a food, while the remaining 59% said they got information through different media channels. It was found that consumers are generally informed about the importance of fish as a foodstuff through secondary promotion channels, i.e. "word of mouth". Consumers in Banja Luka prefer fresh fish, and the most consumed is freshwater fish. As a place of buying fish, both hypermarket and fish shops are equally represented. Factors of purchase may have a major role in creating consumer attitude towards fish and therefore, producers and sellers of fish are recommended too take into account the results of this and similar studies, in order to segment their markets and develop better marketing tools/strategies and thus make better approach of fish consumers to defined market segments.

Key words: marketing, fish supply, consumers, Banja Luka.

JEL: C83, M31, Q13.

Introduction

People use fish in their diet from ancient times. First, they just caught fish and later on they

-
- 1 Aleksandar Ostojić Ph.D., Associate Professor, University of Banja Luka, Faculty of Agriculture, Bulevar vojvode Petra Bojovića no. 1A, 78000 Banja Luka, Bosnia and Herzegovina, Phone: +387 51 330 926, E-mail: aleksandar.ostojic@agrofabl.org
 - 2 Nebojša Savić Ph.D., Associate Professor, University of Banja Luka, Faculty of Agriculture, Bulevar vojvode Petra Bojovića no. 1A, 78000 Banja Luka, Bosnia and Herzegovina, Phone: +387 51 330 977, E-mail: nebojsa.savic@agrofabl.org
 - 3 Željko Vaško Ph.D., Associate Professor, University of Banja Luka, Faculty of Agriculture, Bulevar vojvode Petra Bojovića no. 1A, 78000 Banja Luka, Bosnia and Herzegovina, Phone: +387 51 330 929, E-mail: zeljko.vasko@agrofabl.org

started to grow it from ancient times to the present fishery are being developed in parallel with the development of mankind. Some eat fish, and some is grown. Thanks to changes in human nutrition importance of aquaculture is increasing. Aquaculture as artificial breeding of fish and other aquatic organisms supplements the amount of fish bred in a natural way and to increase consumption of fish meat. Aquaculture has witnessed a steady growth in the world and the value of farmed fish to feed the world's population in 2012 was estimated at 137.7 billion dollars. The average annual growth rate in aquaculture for the period 2002 to 2012 was 6.1% (FAO, 2014). According to FAO (2014) offer the fish has average annual growth rate of 3.2% and is rising more rapidly than the world population. Fish consumption per capita in the world has increased from an average of 9.9 kg in the 1960s to 19.2 kg in 2012 (FAO, 2014). In Bosnia and Herzegovina fish consumption was in 2011 was 5.1 kg per capita (FAO, 2015). Fish and fishery products are an important source of animal protein, and thanks to that fish meat is an important component in the diet of people in the world.

Eternal question is when, where, why and how people eat fish, and answers are given to a number of researches and studies. Many researchers have studied the consumption of fish, specifically or as part of general research on food consumption. Feucht and Zander (2014) explored the attitudes of German consumers of fish in relation to sustainable production of fish and fish consumption associated with ethical principles (taking care of the well-being of fish (Eng. Fish welfare). Guzel et al. (2012) compared the fisheries sector in Japan and Turkey and showed that Japanese eat 70.9 kg of fish per capita, nine times more often than people in Turkey, while Aydin et al. (2011) state that fish consumption in Turkey 6 kg per capita, is higher among people with higher incomes and higher levels of education. They came to an interesting conclusion that in Turkey, eating fish is misinterpreted as a luxury food. Can et al. (2015) found that the consumption of fish meat in the city of Antakya in Turkey is (only) 2.98 kg/year or 13% of the total annual consumption of meat. According to Tomić et al. (2015) Croatia, although the sea country has an average annual consumption of fish of 8-10 kg per capita, compared to a European average of 20 kg per capita. In their research, the taste and image of healthy food are the two most common determinants of fish consumption. Tešić et al. (2012) found that increasing consumption of fish in Serbia mostly depends on production and consumer purchasing power. Projections of fish consumption in the United States (Biing-Hwan et al., 2003) predict its fastest increase of all types of meat, and in reality they are confirmed. The main driver of the increase in consumption of fish is high income and diet-health knowledge. In Spain, expenditure on fish make up 13.3% of total spending on food and 35% of total expenditure for meat (Radwan et al., 2008). The same study confirms that consumption of fish increases, despite an increase in its prices. In Belgium, according to Verbeke et al. (2005), consumers have a strong belief that the fish are healthy and nutritious, and women eat fish more often than men. Rizoff et al. (2015) found that household size has both a negative and a positive revenue impact on the consumption patterns of fish and meat in Slovakia. In Egypt, the consumption of fish also shows a significant increase, almost double over 15 years, and has increased by half a kg per capita per year (Alboghady and Alsahry, 2010), where the fish shows a substitutive relationship with all other meat types. According to Pieaniak et al. (2013) in eight EU countries (N=3,213) consumers eat fish usually once

a week or more than once a month (47%) and their consumer knowledge of fish generally varies significantly depending on the observed countries. Yaqin et al. (2014) found that in China, people usually eat fish once a week, buying it in fish markets, prefer proximity in relation to the place of residence and freshness. Dey et al. (2008) analyzed the cross demand in Asia by country taking into account the numerous socio-economic factors.

The above and other researches confirm that the demand for fish significantly increased and that many factors affect the trend. The authors also surveyed factors, frequency and structure of consumption of fish in Bosnia and Herzegovina (Ostojić et al., 2015a, 2015b) and this work contains the results of the continuation of those their research.

Waters in Bosnia and Herzegovina are among the cleanest in Europe. Fishing in Bosnia and Herzegovina has still not got its place, or its character that objectively belongs to it considering the potential for fish production. Bosnia and Herzegovina has great potential of water for the development of fisheries, in particular freshwaters, the possibility of the development of production and supplying the market with quality domestic products.

Material and Methods

For the purpose of this study, they survey was conducted, by which the data on the habits and attitudes of consumers regarding the offer, purchase and consumption of fish were collected. The survey was conducted in the city of Banja Luka (northwest part of Bosnia and Herzegovina), on a random sample of 100 respondents. For the study, a structured questionnaire of 20 questions was used, of which 19 closed questions and one open-ended. Questions from the questionnaire are grouped into several groups: socio-demographic characteristics of respondents, frequency of purchase, and fish species, place of purchase and the quantity and purchase preferences. Respondents of the survey completed it with the presence of independent interviewers (“face to face”) with the aim of obtaining objective results.

The objective and subject of the research is to determine the basic parameters that influence the purchase, supply and consumption of fish on the Banja Luka market, or study of consumer attitudes about the offer, conditions of purchase and frequency of fish consumption.

The data were analyzed by univariate (frequency and distribution) and two-variant statistical methods and cross-tabulation. Data analysis was performed by using the statistical program of SPSS 17.

Results and Discussions

Socio-demographic characteristics

The survey was conducted in the city of Banja Luka in north-western Bosnia and Herzegovina and the second largest city in Bosnia and Herzegovina (200,000 inhabitants). The survey included 100 respondents, of which 56% of female and 44% of male respondents. The largest number of respondents is within the age group of 36-45 years. More than 50% of respondents have a secondary school education and live in a household with four members. Most of the

respondents live in suburban areas (64%) and the lowest in the rural areas (3%) (Table 1.).

Table 1. Socio-demographic characteristics of the respondents (N=100)

Socio-demographic characteristics		Structure (%)
Sex	Women	56
	Men	44
	Total	100
Age group	< 25 years	32
	25 – 35 years	14
	36 – 45 years	22
	> 45 years	32
	Total	100
Education	Elementary school	14
	Secondary school	60
	University degree	26
	Total	100
Civil status	Married	52
	Single	48
	Total	100
Member of household	One member	5
	Two member	12
	Tree member	20
	Four member	55
	More than 4 members	8
	Total	100
Place of residence	Town	33
	Suburban area	64
	Village	3
	Total	100

Source: Authors, based on survey data.

Of the total number of men (44), 47.7% or 21 of them are married, and 52.3% or 23 are not married. Unlike the men, of the surveyed women (56), 55.4% or 31 of them are married, and 44.6% or 25 are not married. Looking at the ratio of married and males and females, the participation of women is dominant (59.6%) who are married, and the reason is the growing number of surveyed females (31) compared to the total number of those who declared that they marriage. When it comes to unmarried people person's structure is 47.9% of single men and single women 52.1%. Tomić et al. (2015) in their study had the highest share of respondents who lived in the households of 3-5 members (69%), whereas in this study, the largest number of respondents lives in the households with four members (55%).

By linking the age of the respondents and a sex (Table 2.), the largest representation of female respondents were over the age of 45 years (32.1%). Representation of male respondents was similar in the group of those of 25 years and more than 45 years.

Table 2. Age of respondents by sex

			Sex		Total
			Male	Female	
Age	<25	Total (n)	16	16	32
		% within the age group	50,0%	50,0%	100,0%
		% within the sex group	36,4%	28,6%	32,0%
	26-35	Total (n)	6	8	14
		% within the age group	42,9%	57,1%	100,0%
		% within the sex group	13,6%	14,3%	14,0%
	36-45	Total (n)	8	14	22
		% within the age group	36,4%	63,6%	100,0%
		% within the sex group	18,2%	25,0%	22,0%
	>45	Total (n)	14	18	32
		% within the age group	43,8%	56,3%	100,0%
		% within the sex group	31,8%	32,1%	32,0%
Total		Total (n)	44	56	100
% within the age group		44,0%	56,0%	100,0%	
% within the sex group		100,0%	100,0%	100,0%	

Source: Authors, based on survey data.

The frequency of purchase and type of fish

By analyzing the behaviour of consumers in the purchase of fish in the Banja Luka market and preferences for the types of fish that usually are consumed, it may be noted that most respondents consume fish once a week. In this case it can be said that respondents express the two extremes i.e. They are either “lovers” and consume fish once a week or they are not too thrilled with fish and eat it very rarely, every ten to fifteen days during the month. If the last two groups are merged, is noticeable that 45% of respondents eat fish very rarely in the nutrition (*Table 3.*). It is particularly interesting because it is not about the Mediterranean area, and in this area the habit of consuming fish in fresh condition is not expressed, as shown by studies conducted in Zadar (Franičević, 2012), where 39% of respondents consumed fish once a week, 25% polled consumed fish 2-3 times a month, 22% of them consumed fish 2-3 times a week, 12% of respondents said they rarely consume fish, and only 2% of respondents consumed fish every day. Pieaniak et al. (2013) reported that the majority of respondents in eight European countries consume fish once a week or more than once a month (47%).

Table 3. Frequency of purchase and preparation of products for market

		Fish condition			Total
		Fresh cleaned	Fresh non cleaned	Frozen	
Frequency of fish consumption	1 a week	28	6	9	43
	2 - 3 per week	8	3	1	12
	2 - 3 per month	17	3	4	24
	1 a month	11	0	10	21
Total		64	12	24	100

Source: Calculation by authors, based on survey data.

If we consider the level of preparation of fish for the market, research shows that the largest number of respondents buy fresh cleaned fish, and this is particularly dominant with those consumers, who consume fish once a week. It can also be noted that respondents, who rarely consume fish (once a month), require fresh cleaned or frozen fish i.e. the product of a higher level of preparation for consumption. It is evident that there is almost no difference between fresh cleaned and frozen fish i.e. consumers in this group do not prefer fish that is not cleaned, i.e. it could be said that both forms of fish can be saved and deferred consumption at a propitious moment. Tešić et al. (2013) state that in order to increase fish consumption, special attention need to be paid to the range of offers, especially packaged fish.

One of the questions was about consumers' "ranking list" of the most popular fish consumed. When it comes to the type of fish that is usually bought, we see that there are dominated by three types of fish (trout, hake, and carp). The first priority of the respondents is trout, hake and then the carp. For the second choice, the respondents stated: trout, carp and hake. The third priority for them is: carp, hake and trout (*Table 4.*).

Table 4. Selection of fish by species

		Selection 1	Selection 2	Selection 3
Fish species	Sea bass fish	2	3	3
	Bream fish	2	4	5
	Hake	36	23	19
	Trout	51	30	11
	Mackerel	0	7	9
	Perch	2	1	2
	Catfish	1	4	5
	Carp	6	28	46
Total		100	100	100

Source: Calculation by authors, based on survey data.

Hake is generally chosen because of the price, i.e. it is the cheapest fish, less for taste and more because of the habits and quick preparation and possibility of storing and using the product in a suitable moment to prepare lunch. The last of the top three priorities on the list was the carp because of both the cost and taste. Couple of respondents said that catfish and perch are very tasty fish, but they are not popular and there is not enough supply of the Banja

Luka market. The research (Franičević, 2012), which was conducted in Croatia, shows that respondents usually buy: sardine (31.1%), hake (27.6%), carp (14.4%) and trout (4.8%).

Since the respondents mentioned the first three types of fish in three offered variants on the total number of surveys, we received 300 responses. The presented data show that the most commonly consumed fish in the area of Banja Luka is trout with a share of 30.7%, i.e. that nearly one third of respondents cited this type of fish as one of the priorities in consumption. The second one is carp (26.7%) and the third one is hake (26.0%) (Table 5.). Ostojić et al. (2015b) indicate that consumers in the northern part of the Republic of Srpska, in most cases prefer fresh freshwater fish. Yaqin et al. (2014) in his research report that 60.4% of respondents preferred the consumption of freshwater fish, because of freshness and taste.

Table 5. The most significant choices of fish consumers

Fish species	Frequency (N)	Share (%)	Cumulative (%)
Sea bass fish	8	2,7	2,7
Bream fish	11	3,7	6,3
Hake	78	26,0	32,3
Trout	92	30,7	63,0
Mackerel	16	5,3	68,3
Perch	5	1,7	70,0
Catfish	10	3,3	73,3
Carp	80	26,7	100,0
Total	300	100,0	

Source: Calculation by authors, based on survey data.

Analysis of variance ($F=22.096$, $p=0.000$) in terms of the type of fish that consumers prefer (I, II and III selection) demonstrated a statistically significant difference ($\alpha=0.01$). A statistically highly significant difference in the level of significance $\alpha=0.01$ (Tukey test) occurred in most combinations, except the combination of II and III of choices in which there was no statistically significant difference.

Regardless of what type of fish, the respondents believe (90%) that the fish is a healthy product, provided that women have stronger attitude on fish as a healthy food (48%) in terms of nutritional importance, which is in accordance with the results of Verbeke et al. (2005). Only 10% of respondents did not have a defined position on fish as a healthy food. Also, Tomić et al. (2015) suggest that there is a personal sense of responsibility for feeding the family and the offer of fresh fish in the household. Feucht and Zander (2014) stated in their research that respondents in Germany believe that farmed fish does not taste right or that nature gives a taste of the product.

Place of purchase and quantity

When it comes to buying fish, the consumers most often choose a hypermarket with 51%, followed by the fish market with 49% of respondents, which is consistent with the research of consumer attitudes in Italy (Gaviglio and Demartini, 2009) which also states that the fish

is usually bought in stores as well as the research of Can et al. (2015), who state that the fish are mainly bought in fish markets and supermarkets (80%).

Table 6. Structure (%) of purchase and the quantity of purchased fish

Indicators	Place of purchase fish	Structure (%)
Place	Hypermarket	51
	Fish shop	49
	Total	100
Purchased quantities of fish	< 1 kg	54
	1 - 2 kg	38
	> 2 kg	8
	Total	100

Source: Calculation by authors, based on survey data.

The consumers mainly buy smaller quantities of fish i.e. up to 1kg (54% of respondents), followed by 38% of respondents who declared themselves to buy 1-2 kg fish in one purchase, while 8% of respondents purchased more than 2 kg of fish in a single purchase (*Table 6*). Čaldarović et al. (2007) has come up with similar findings, that the Croatian respondents usually buy up to 1 kg (44.6%) of fish in one purchase. Very few respondents expressed support for the purchase of fish over 2 kg (16.8%), which indicates that they usually buy fish for one meal (Ostojić, 2015b).

Preferences for shopping

Respondents ranked the five factors by scoring them as follows: “1 - the least important” to “5 - the most important” that influence their decision when buying fish. As the dominant factor when buying fish, respondents emphasized the freshness of the fish, which received an average score of 4.86, which is certainly not unexpected, considering the type of product. The least important characteristics of the decision when purchasing fish for people in the Banja Luka market is type of fish with an average score of 3.88, which suggests that if you have decided to consume the fish, you will not give up if you do not find the fish you want in the market and that it is “easy” to replace it with another type of fish that is available to them as per the price and quality. It is also notable that the largest dispersion as evaluation factor is “type of fish” (SD=1.12). The respondents cited that origin of the fish is an important factor in the decision when purchasing fish, which is in accordance to the Franičević (2012), who also notes that consumers prefer domestic fish in relation to imports, fresh fish compared to frozen, as it is the case in this study. Also, Ostojić et al. (2015), in previous researches referred to Banja Luka, noted that 59% of respondents opted for fresh fish, 36% in Prijedor, and 60% in Bijeljina.

Table 7. Respondents rating the importance of factors influencing the decision to purchase fish

	Minimum	Maximum	x	SD
“Freshness”	2.00	5.00	4.86	0.43
“Origin”	2.00	5.00	4.18	0.86
“Price”	1.00	5.00	4.08	0.96
“Type of fish”	1.00	5.00	3.88	1.12

Source: Calculation by authors, based on survey data.

It is interesting that the factor of “price” is in third place although when they were asked the question about the prices, they declared that it was high. It is evident that consumers still care more about the origin and freshness of the fish, and then the price of fish, although the general view is that the price of fish in the market Banja Luka is high (Table 7.). Statistical analysis showed no link between factor of prices and income of respondents ($\chi^2 = 0.262$), although it was expected, which may be the reason why the price ranks only on the third place in priorities in buying the fish. Analyzing consumer preferences towards the origin of the fish in the northern part of the Republic of Srpska, nearly 57% of respondents prefer fish from local ponds i.e. domestic origin, while 30% do not pay attention to the origin (domestic/import) for the purchase of fish (Ostojić et al., 2015b).

When we talk about awareness about fish as a food item, 59% of respondents gave a positive response, and 41% said they are not informed enough about fish as a food item. 21% of them are informed about the fish through friends or acquaintances, 19% via the Internet, 9% on the television or radio. Then 6% through newspapers or magazines, and only 3% use professional literature for information on the importance of fish in the diet (Table 8.).

Table 8. Structure (%) informing consumers about the importance of fish in the diet

Indicator	Structure (%)	
Are you informed about the importance of fish in the diet	NO	41
	YES	59
	TV	9
	Newspapers	6
	Internet	19
	Friends	21
	Technical literature	3
	Other	1
	Total	59

Source: Calculation by authors, based on survey data.

Conclusions

Results of the study show that more women participated in the study (56%). The majority of respondents expressed that they live in the suburb (66%) and to have a high school degree.

Respondents most commonly consumed fish once a week (43%) and prefer fresh cleaned fish (64%). As for the reason why eating fish as a food item, consumers stand the taste and nutritional value. Even 90% of respondents said that the fish belong to the category of healthy food. Place of purchase of fish is the fish market (49%) and hypermarkets (51%), and the purchased a quantity of fish is usually up to 1 kg. Socio-demographic factors did not have a statistically significant impact on the location and frequency of purchases and consumption of fish. Analysis of variance in terms of the type of fish preferred by consumers demonstrated statistically significant difference. The freshness stands out as a crucial factor when purchasing a fish, while the majority of respondents agree that the supply of the market in fishery products as medium. The most commonly consumed fish is trout, then carp and hake. Consumers' habits are related to the purchase of freshwater fish species that are commonly grown in our area, which showed the importance of the origin as the factor in the decision when purchasing fish. The exception is that consumers buy hake, as far as marine fish species are concerned, primarily because of price advantage. Hake is purchased frozen, while the most common trout is bought in the fresh state. Statistical analysis showed no dependency on monthly income and prices of fish. The majority of respondents (59%) declared that information about the fish as a food item they usually get as the recommendation by friends. However, in order to boost fish consumption, it would be needed to implement specific marketing activities that would be directed at familiarizing the consumers about the importance of fish in the daily diet.

References

1. Albohgdady, M., Alsahry, M. (2010): *Demand for meat in Egypt: An almost ideal estimation*, African Journal of Agricultural and Resources Economics, vol. 4, no. 1, pp. 70-81.
2. Aydin, H., Dilek, M. K., Aydin, K. (2011): *Trends in fish and Fishery Products Consumption in Turkey*, Turkis Journal of Fisheries and Aquatic Sciences, no. 11, pp. 499-506.
3. Biing-Hwan, L., Variyam, J., Allshouse, J., Cromartie, J. (2003): *Food and Agricultural Commodity Consumption in the United States: Looking Ahead to 2020*, Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture, Agricultural Economic Report No. 820.
4. Can, M.F., Gunlu, A., Can, H.Y. (2015): *Fish consumption preferences and factors influencing it*, Food Science and Technology, Campinas, vol. 35, no. 2, pp. 339-346; doi: 10.1590/1678-457X.6624
5. Čaldarović, O. (2007): *Sociološka studija o preferencijama u ishrani ribom i drugim proizvodima ribarstva stanovništva Republike Hrvatske / Sociological study on preferences in consumption of fish and other fishery products of the population of Republic of Croatia*, Sveučilište u Zagrebu.
6. Dey, M.M., Garcia, Y., Kumar, P., Piumspmbun, S., Sirajul, H. M., Li L., Radam, A., Senaratne, A., Khiem, T. N., Koeshendrajana, S. (2008): *Demand for fish in Asia: a cross-country analysis*, The Australian Journal of Agricultural and Resource Economics, vol. 52, no. 3, pp. 321-338.

7. Feucht, Y., Zander, K. (2014): *What German Consumers Expect from Sustainable Aquaculture?* Proceedings of the 8th International European Forum on System Dynamics and Innovation in Food Networks, International Center for Food Chain and Network Research, University of Bonn, Germany; doi: 10.18461/pfsd.2014.%25x
8. Food Agricultural Organization of the United Nations (2014): *The State of World Fisheries and Aquaculture, Opportunities and Challenges*, Rome, Italy.
9. Food and Agricultural Organization of the United Nations (2015): *The Fisheries and Aquaculture Sector in Bosnia and Herzegovina, Preparation of IPARD Forest and Fisheries Sector Reviews in Bosnia and Herzegovina*, Food and Agricultural Organization of the United Nations, Regional Office for Europe and Central Asia.
10. Franičević, V. (2012): *Croatina fish consumer preferences with specific focus on fish originated from aquaculture*, Ph.D. thesis, Split, Croatia.
11. Gaviglio, A., Demartini, E. (2009): *Consumer attitudes towards farm-raised and wild-soughed fish: variables of product perception*, New Medit, No. 3, Supplement: 34-40.
12. Guzel, M., Kameda, K., Yamamoto, N. (2012): *Comparison of Fisheries Sectors of Japan and Turkey in Production, Consumption, Trade and Future Possibilities*, Applied Studies in Agribusiness and Commerce, vol. 6, no. 5, Agroinform Publishing House, Budapest.
13. Ostojčić, A., Vaško, Ž., Savić, N. (2015a): *Ponašanje i stavovi potrošača ribe u sjevernom dijelu Republike Srpske /Behaviour and attitudes of consumers of fish in the northern part of the Republic of Srpska*, Agroekonomika, vol. 44, no. 66, pp. 139-148.
14. Ostojčić, A., Vaško, Ž., Savić, N., Pavličević, J. (2015b): *Similarities and differences in the habits of fish consumers on three cities of the Republic of Srpska*, Conference proceedings. VII International Conference Water & Fish, Belgrade, Serbia, pp. 389-395.
15. Pieaniak, Z., Vanhonacker, F., Vewrbeke V. (2013): *Consumer knowledge and use of information about fish and aquaculture*, Food policy, 50: 25-30; doi: 10.1016/j.foodpol.2013.01.005.
16. Radwan, A., Gil, J., Ben, K. M., Serra, T. (2008): *Modeling the Impact of Food Safety Information on Meat Demand in Spain*, No 6672, 107th Seminar, European Association of Agricultural Economists. Seville. Spain; doi: 10.1.1.527.8887.
17. Rizov, M., Cupak, A., Pokirivčak, J. (2015): *Food security and household consumption patterns in Slovakia*, 29th Conference, European Association of Agricultural Economists, Milan, Italy. Available at: <http://purl.umn.edu/211553>.
18. Tešić, M., Baltić, Ž. M., Teodorović V., Mirilović M., Nedić D., Marković T., Marković R., Aleksić Agelidis A. (2013): *Tendency of fishing development and fish consumption in Serbia*, Veterinarski glasnik 67, 5-6; doi: 10.2298/VETGL1306417T.
19. Tomić, M., Matulić, D., Jelić, M. (2015): *What determines fresh fish consumption in Croatia*, Appetite: 1-10; doi:10.1016/j.appet.2015.12.019.
20. Verbeke, W., Sioen, I., Pieniak, Z., Van Camp, J., De Henauw, S. (2005): *Consumer perception versus scientific evidence about health benefits and safety risks from fish consumption*, Public Health Nutrition, 8 (4); doi: 10.1079/PHN2004697.

21. Yaqin, H., Chunhong, Y., Kefeng, Y., Yinghong, Q., Shunsheng, C., Xichang, W., Ikuo, K. (2014): *An Online Survey Study of Consumer Preferences on Aquatic Products in China: Current Seafood Consumption Patterns and Trends*, Fisheries and Aquaculture Journal, Volume 5, Issue 2: 2-6; doi: 0.4172/2150-3508.1000094.

STAVOVI POTROŠAČA O KUPOVINI RIBE U BANJOJ LUCI

Aleksandar Ostojić⁴, Nebojša Savić⁵, Željko Vaško⁶

Rezime

Cilj istraživanja predstavljenih u radu je utvrđivanje osnovnih parametara koji utiču na kupovinu, ponudu i potrošnju ribe na tržištu Banje Luke (Bosna i Hercegovina). Metodom anketiranja slučajnog uzorka obuhvaćeno je 100 ispitanika. Podaci su obrađeni jednovarijantnim (frekvencije i distribucije) i dvovarijantnim statističkim metodama i dvosmjernom tabulacijom. Zaključci istraživanja su da su za kupovinu ribe presudni, u prvom redu svježina, što je i za očekivati s obzirom na vrstu proizvoda kao i porijeklo, i cijena i vrsta ribe. Od ukupnog broja ispitanika, 41% se izjasnilo da nije informisano o ribi kao prehrambenom artiklu, dok se preostalih 59% izjasnilo da se informišu preko različitih medija. Utvrđeno je da se potrošači najčešće informišu o značaju ribe kao prehrambenog artikla sekundarnim vidom promocije, tj. "od usta do usta". Potrošači u Banjoj Luci preferiraju svježiju ribu, a najviše konzumiraju slatkovodnu ribu. Kao mjesto kupovine ribe podjednako su zastupljeni hipermarket i ribarnica. Faktori kupovine mogu imati bitnu ulogu u stvaranju odnosa potrošača prema ribi i stoga se preporučuje proizvođačima i prodavcima ribe da uzmu u obzir rezultate ovog i sličnih istraživanja, da segmentiraju svoje tržište i da osmisle što bolje marketinške instrumente/strategije i na taj način još bolje približe ribu potrošačima prema definisanim segmentima tržišta.

Ključne reči: *marketing, ponuda ribe, potrošači, Banja Luka.*

-
- 4 Vanredni profesor, dr Aleksandar Ostojić, Univerzitet u Banjoj Luci, Poljoprivredni fakultet, Bulevar vojvode Petra Bojovića 1A, 78000 Banja Luka, Bosna i Hercegovina, Telefon: +387 51 330 926, E-meil: aleksandar.ostojic@agrofabl.org
- 5 Vanredni profesor, dr Nebojša Savić, Univerzitet u Banjoj Luci, Poljoprivredni fakultet, Bulevar vojvode Petra Bojovića 1A, 78000 Banja Luka, Bosna i Hercegovina, Telefon: +387 51 330 977, E-meil: nebojsa.savic@agrofabl.org
- 6 Vanredni profesor, dr Željko Vaško, Univerzitet u Banjoj Luci, Poljoprivredni fakultet, Bulevar vojvode Petra Bojovića 1A, 78000 Banja Luka, Bosna i Hercegovina, Telefon: +387 51 330 929, E-meil: zeljko.vasko@agrofabl.org

MARKET AND TRADE OF ORGANIC FRUITS IN SERBIA

Radivoj Prodanović¹, Boris Kuzman², David Jovović³, Lazar Ozegović⁴

Abstract

The aim of paper is to investigate the market and traffic flows of organic fruit, respectively factors that determine demand, customer attitudes and their motives for purchase.

From methods that are applied, the key methods are questionnaire and interview, and statistical, graphical and logical methods are used.

Organic fruits market has begun to be developed in recent years, there is a demand, but on a small scale. Sustainability and further development of organic fruit production is largely caused by demand.

Employed woman, with good financial condition, with children, higher or high educated, ages between 30 and 50 years, with a place of residence in the city, buys organic fruits.

Health safety, quality, production area and care for the environment are the most important motives for purchase of organic fruits. Certificate, recommendations, appearance and taste of product, curiosity and packaging have secondary importance.

The key factors, because of which the customers do not buy organic fruits, are unavailability in sales channels, high price, lack of confidence in organic products and low incomes.

Key words: *market, traffic, demand, organic fruits, Serbia.*

JEL: *Q13, A11, M31*

Introduction

Organic fruits are produced in a system which excludes the use of inputs such as: fertilizers,

- 1 Radivoj Prodanovic Ph.D., Assistant Professor, University Business Academy in Novi Sad, Faculty of Economics and Engineering Management in Novi Sad, Cvecarska Street no. 2, 21000 Novi Sad, Serbia, Phone: +381 21 400 484, E-mail: rprodanovic@fimek.edu.rs
- 2 Boris Kuzman, Ph.D., Associate Professor, Institute of Agricultural Economics, Volgina Street no. 15, 11060 Belgrade, Serbia, Phone: +381 63 590 129, E-mail: kuzmanboris@yahoo.com
- 3 David Jovović Ph.D., Associate Professor, University of Prishtina, Faculty of Agriculture, 38219 Lešak, Telephone: +381 28 88 261, E-mail: david.jovovic@pr.ac.rs
- 4 Lazar Ozegovic Ph.D., Associate Professor, University Business Academy in Novi Sad, Faculty of Economics and Engineering Management in Novi Sad, Cvecarska Street no. 2, 21 000 Novi Sad, Serbia, Phone: +381 21 400 484, E-mail: ozegovic.lazar@gmail.com

pesticides, growth hormones, genetically modified organisms. The certificate guarantees high quality and health safety of organic fruits.

Organic fruits market is developing, thanks to increased demand, which is the result of increased concern for health and environmental quality. The share of organic fruits in the total offer of food is relatively small, while it presents significant segment in the total offer of organic food. The organic fruits market is interesting for potential participants, because of existing insufficient offer and lower level of competition.

Offer and demand of organic fruits are out of balance. Demand is greater than offer, so it seems significant to explore which factors dominantly influence on traffic flows and behaviour of customers, in order to exploit the evident market potential.

The Aim and Significance of Paper

The aim of paper is to research the market and traffic flows of organic fruits, in respectively factors that determine demand, customers' attitudes and their motives for purchase. The purpose of the research is to determine the absorptive power of the market for organic fruits, in order to estimate the impact on the further development of organic fruit production.

Considering that modern trend in the nutrition sets the new requirements for quality and health safety of food, the research, which is aimed to make overview of traffic flows of organic fruits, can be considered as significant.

Methodology

We used surveys, interviews, statistical and logical methods. Among the other standard methods, there is application of the methods of description, deductive and inductive methods, analysis and synthesis, generalization and abstraction.

The questionnaire presents the combination of simple and selected sample. The questionnaire is designed to contain mostly "closed questions" with the choice, with regard that respondents can give their own answer on some questions. The first part of the questionnaire presents questions about attitudes of customers about organic fruits and motives for purchase, while the second part presents general questions, such as age, gender, occupation, etc. Greater part of questionnaires is distributed in Novi Sad, and the rest is in places as Belgrade, Subotica etc. The survey has been being conducted from January to June 2016, and 317 questionnaires enter into processing. In data processing it is used software IBM SPSS Statistics 21, and the results are showed graphically.

Results and Discussion

The Global Market of Organic Fruits

The global market of organic food, especially organic fruits, is stable and is in increase despite financial crisis. The market's growth of organic food is limited due to insufficient production and offer, so that there is significant market potential, which can be utilized by new participants (Mitic, Gligorijevic, 2012).

Market of organic fruits and vegetables is the fastest increasing sector of the food market with extremely high rates of growth, leading to supplying the market in various regions. As the insurance of sufficient quantities of organic food becomes a major concern, so commercial enterprises from developed countries are engaged in investing into developing countries, in order to fulfill the demand for these products (Sudarevic, 2007).

Organic fruits are bought by customers with relatively high purchasing power, but also the others who realized that food has a preventive impact on health protection, regardless of their weaker economic position. Economic developed countries have greater social product and they are potentially interesting market for producers of organic fruit (Prodanovic, 2015).

The organic fruit market firstly began to develop in the EU countries and the USA. The first impulses for development of this market have started off from offer side, where the farmers have been deciding to start with organic production, with the desire to reduce the use of chemicals or, however, from personal conviction, and just later because of the support that was being provided by the government of some states. The demand has also influenced on the development of organic food market, because the customers have showed interest for health food safety (Carolyn, Oberholtzer, 2009).

It is estimated that the global market for organic food products in 2014 amounted to 80 milliard dollars, of which share of fruits and vegetables is 45% (Willer, Lernoud, 2016). The world market and traffic of organic fruit record the trend of steady growth, by virtue of demand that is being increasing. In developed countries, organic fruits traffic has reached 4 to 5% (Milenkovic et al., 2011).

The organic fruits market and products are rapidly developing in several EU countries, which can be an interesting opportunity for exporters from developing countries (Matovic, Begovic, 2011).

Considering that Serbia records good results in exporting fruits to the EU, especially when it comes to exports of frozen raspberries and other berries, organic production and export of these products will provide even greater economic effects. The relative comparative advantage in exporting fruits from Serbia, which is being held at the maximum level, should be utilized and kept by production and offer of organic fruits (Kuzman et al., 2016).

According to Richter and Padel (2005), there are three basic levels of development of the organic food products market:

- Saturated market,
- Growing market
- Creating market.

The majority of markets in Western Europe are in the growth phase or maturity, and basic offer of organic items is available in almost every supermarket. The markets of Central and Eastern Europe, as well as those in other countries which are on lower level of development in the phase of formation. The demand growth for organic fruits in the world market is an

opportunity for producers in developing countries.

Growth rates in the saturated markets amount to 5%, and the volume of organic products sales is decreasing. The role of supermarkets is valuable in these markets. Growing markets have growth rates from 5 to 15%, and traffic is dominantly being occurred through specialized stores and direct sales. Creating markets are rapidly growing, represent niche marketing, they are pioneers in traffic and have lack of organizational structure. It includes specialized stores and direct sales. The organic fruits market in its entirety is an example of creating market. In order to develop this market, it is necessary to conduct series of activities, where the marketing has a major role (Richter, Padel, 2005).

The Organic Fruits Market in Serbia

In the Republic of Serbia, and in neighboring countries, the development of organic food market is not satisfactory due to disorganised production, poor promotion, insufficient presence in the media. The key task is to connect all local actors in a cooperative chain and creating institutional conditions for faster development of organic agriculture (Rakic, Rakic, 2009).

Reliable data about production and traffic of organic fruits are not available because the statistics does not separate specially organic from conventional products.

The organic fruits market in Serbia has begun to develop in recent years. The development of organic fruits market is contributed by the adoption of the Law on organic production and the introduction of a national character, which gives the confidence to customers and guarantees that the product is from strictly controlled production. The poor organization of market, problems in distribution and lack of information to customers are evident (Prodanovic, 2015).

Organic fruits can be bought in specialized store of “healthy food“, on the shelves of some supermarkets, directly at the producers, via the Internet and at the stalls of some markets. The prices that some producers of organic fruits accomplish are greater for about 10-20%, which is not enough for adequate valorization of their production (Marz et al., 2013). Organic fruits and products on Serbian market are from domestic production, and one part of it is imported. The largest part of organic fruit is exported, especially in the EU, because the domestic market is underdeveloped, due to lack purchasing power of the population (Berenji et al., 2013).

Organic fruits are distributed to the wholesale trade, supermarkets, specialized stores retail. Larger quantities of organic fruits are redeemed by processors. Supermarkets appearance has led to increasing prices of food, and at the same time decreasing producers' price. Producers generally can not achieve significantly higher prices of organic fruits, because of sales mediators in traffic who take high margin. Although the organic fruits have entered in the supermarket offer, it is not so much done on promotion. Practically, it is left to the customer to recognize organic productions and to decide by himself about possible purchase. Sales via the Internet (e-commerce) is far more advanced in developed countries, and this was of sale has also been started to develop in our country (Bio pantry and Eco label).

The demand for organic fruits exists and is elastic, meaning that it is being changing with changes of price and incomes. Although the per capita income in Serbia has been decreased in Serbia in last decade, the demand for organic products is still limited because of food price growth (Marz et al., 2013).

The main obstacles of further development of domestic market of organic products are (Kalentic et al., 2014):

- Low purchasing power
- Lack of information to the customers
- Low ecological awareness
- Small volume of production
- Inappropriate labeled products (fruits mainly does not have label “organic product“)
- Signs so-called “healthy food“ often confuses customers (“green apple“ and the like)
- In so-called “healthy food“ stores, conventional product are also sold, what refuses potential customers of organic food
- Insufficient research of foreign markets in which it is desirable to perform (level of incomes, preferences, market segments, etc).

For development of organic fruit market it is needed to direct marketing strategy to target groups, such as the youth and all those who prefer healthy lifestyle. It should emphasize the advantages which organic fruits provide, such as positive influence on the health and production in accordance with the interests of environment. Because of low realization of organic food in domestic market and relatively lower living standards, marketing concepts should be focused on foreign markets of developed states, where traffic of organic food records significant growth (Prodanovic, 2015).

Customers’s Attitudes about Organic Fruits

Increased sale of organic food, changes in eating habits, concerns for food safety, as well as greater personal health awareness have led to the larger interest of customers for fresh fruits, especially for certified organic fruits (Ferguson, 2004). If there are small children or babies in the house, parents chose to buy organic fruits for reason of concern for food safety. Parents perceive that organic food do not have harmful substances and it is healthy alternative to conventional fruits (Smith et al., 2009).

The customers’ perception in Australia about organic fruits is improved over time, but there is still difference between customers groups and some customers who are still confused, while some do not understand the concept of organic food. In the UK, there is no difference at all in perception of organic food, at consumers and those who do not buy. Some customers consider that the word “organic“ is just a marketing trick (Nguyen, 2013).

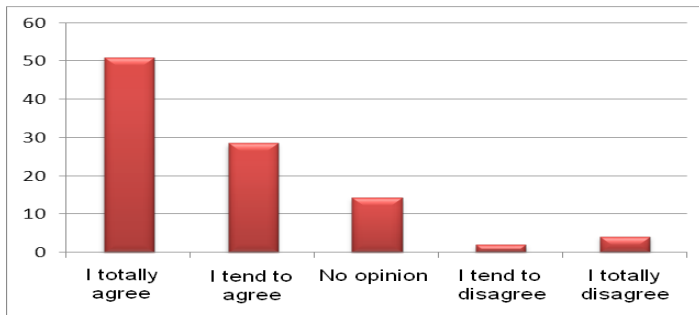
Domestic customers are mainly not informed about organic fruits, so they identify it with

unsprayed and fruits produced on traditional way in gardens and garden plots. Customers are not enough educated and do not know how to recognize organic products. On the other hand, there are customers who consider organic production as fashionable phenomenon and do not have confidence in its integrity (Berenji et al., 2013).

Using a mail survey in Victoria Lea and Vorslei (2005), found that the majority of respondents praise the taste of organic fruits and higher content of vitamins and minerals (Chang, Zepeda, 2005).

Customers of organic fruits largely value the health safety, positive impact on health, respectively. Also, consumers regard (83.7%) that organic fruits are much healthier than produced in the conventional way. 79.6% customers believe that organic fruits are richer in vitamins and minerals (Chart 1).

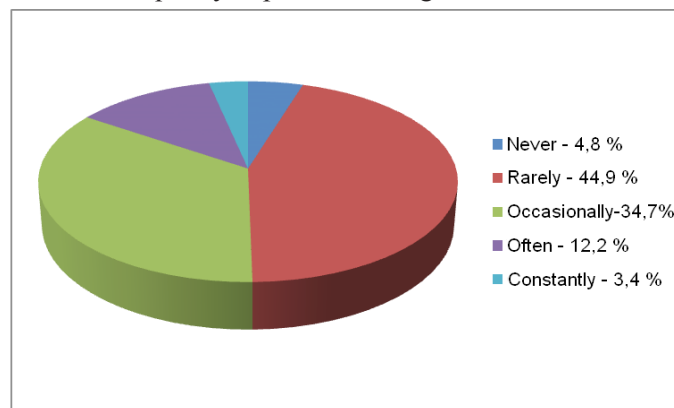
Chart 1. Organic fruits are richer in minerals and vitamins – answers of respondents (%)



Source: Authors’ research

Participants suggest that they rarely buy organic fruits, even 44.9% of them, while 34.7% are occasional customers. The number of those who frequently buy organic food is 12.2%, and 3.4% permanent consumers. 4.8% of them have never bought organic fruit.

Chart 2. Frequency of purchase of organic food



Source: Authors’ research

Results show that customers are informed about organic products and they declaratively support. In the study of Vlahovic et al. (2011), it is suggested that even 70% of examinees know what organic food is, while 20% of them have never heard for organic products. It could be concluded that informing the customers about organic food is at high level.

Profile of Customers of Organic Fruits

Most studies show that those who approach to the organic market are highly educated, have relatively high incomes, live in cities and are concerned about their health. In USA, many organic customers are parents of small children and infants and that characteristic is considered as the reason for growth of organic food market (Lockie et al., 2004).

According to research market which is conducted by NASO⁵, description of average customer of organic products in Serbia is: woman aged 25-40, educated and aware of the influence of insecure food on health. By buying for her family, she promotes organic food on micro market (Kalentic et al., 2014).

On the basis of research, we defined the profile of organic fruits customers: Organic fruits buys employed person by good financial conditions with children, higher or highly educated, ages between 30 and 50, with a place of residence in the city. This person is likely to be women, but also men are those who buy organic fruits.

Demand's Factors of Organic Fruits

Demand for organic fruits is larger in regard to the offer, observed at the global level, and it is in a steady upward trend. There is a demand in the domestic organic food market, but in a small volume.

Demand for organic fruits is determined by usefulness, the absence of chemical, environmental protection and better taste, while the appearance of the food, simplicity of preparation and suitability for maintaining a normal body weight are of less importance (Schifferstein, Ophuist, 1998).

Personal health problems are the most important motive for purchase of organic food among the Australian customers, but also those in other countries (Nguyen, 2013).

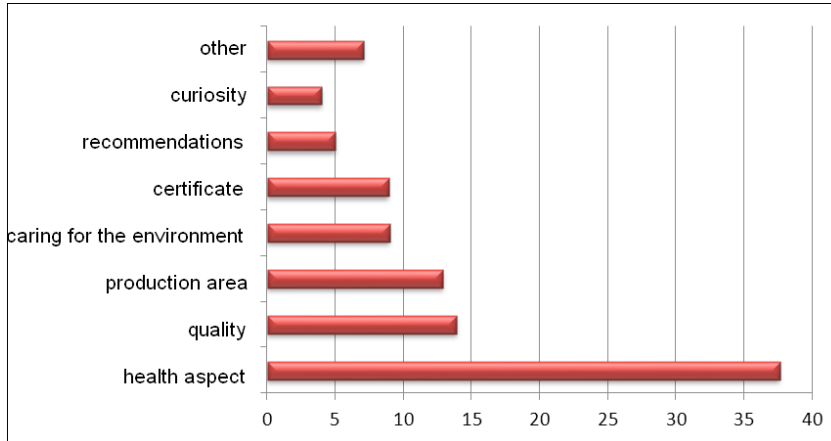
Misunderstanding of existing certification schemes for organic producers and processors, is one of the factors that confuses customers and turns away from organic products purchase. There are labels, trademarks and logos (Chang, Zepeda, 2005).

Empirical analysis of demand for organic fruits is restricted and mainly focused on the factors research which predominantly influence on making decisions about purchase. We have been exploring how much customers are voluntary to pay higher price for organic food, and how the socioeconomic and demographic factors affect the demand. We have polled the customers personally and electronically, and have processed collected data in order to perceive the attitudes about organic fruits, buying habits and the most significant motives for purchase.

⁵ NationalAssociationSerbiaOrganica.

Customer Panel, which we set in two stores of organic food (My Farm and Organic House) also at the market-place of organic products (My Farm) in Novi Sad, in combination with electronic questionnaire, which included several cities in Serbia, gives the answer to the question what the most significant motives for organic fruits purchase are.

Chart 3. Impact of some factors on organic fruits purchase (in %)



Source: Authors’s research

Health aspect is one of the most important reasons for which the customers decide on purchase of organic fruits. In research of Peck et al. (2006), it is suggested that organic apple has more antioxidants, which gives power to the argument that there is potential positive influence on health.

For motives of purchase, health safety of product has the largest effect among the customers, positive impact on health, respectively. Even 77.6% declared the health aspect as a reason for purchase. With 38.3% share, health aspect is the most relevant purchase motive (Chart 3). Customers accentuate the significance of food and proper nutrition for their health. 46.9% of them say that proper nutrition is especially significant and they connect organic fruits with it. Younger participants claim that they buy organic fruits for children, especially for babies.

Vlahovic et al. (2011) suggest that 16% of participants are motivated for purchase of organic products by health care. In our study, the percent is much higher, which can be explained by the fact that customers are gradually changing the consciousness about their health.

Out of total number of respondents, 38.6% of them claimed, beside other factors, the quality of organic fruits, as the purchase motive. According to impact on making decision about purchase, the quality is on the second place with 13.9% of share. It is expectable for this factor to be more stronger as purchase motive by the growth of living standards.

In study of Vlahovic et al. (2011), the quality as purchase motive is dominant. Even 35% of participants declare that the quality is a reason why they decided to buy organic product.

The customers decide for buying organic fruits also due to they believe that it contains more nutrients than conventional fruits. Huge number of people who have tasted organic fruits are potential customers. When they gradually realise the significance which organic food has, then they will more often begin to buy (Nguyen, 2013).

The studies showed that mistrust in the authenticity of organic products from imports is present almost in all countries of EU. The case of Switzerland is the most noticeable, where main domestic organic label forbid organic products that are transported by plane. Customers in Australia said that they very prefer domestic organic products (preferably purchase directly in farm) and value only organic products from imports, which cannot be produced in country. If the import of organic products is necessary, products originating from surrounding lands are accepted. Also, customers in Japan and USA have a huge preference for locally grown organic products. In order to successfully introduce itself, imported organic products on that markets require specific marketing efforts, for getting confidence of customers. The United Kingdom and Belgium are two examples where the difference in confidence among domestic and imported organic products is relatively small. This is explained by the fact that domestic organic production in these countries is not capable to catch up with increasing demand, so import is ordinary practice (FAO, 2001).

For 31.67% of customers who buy organic apples in USA (Vermont), dominant motive for buying is the location or place of production (Wang, Junjie, 2003).

In study of Vlahovic et al. (2011), it is suggested that 40% of respodents prefer organic products of domestic production, while quarter of respodents prefer foreign organic products. Smaller number of them (10%) do not discern between domestic and imported organic food products.

In our study, 26.5% of respodents declare the origin of product, respectively the area of production, as one of the motive for purchase of organic food. In the same way, they have more confidence in organic fruits produced in country than those from imports.

Therefore, area of production is a significant factor which influence on making decision about organic fruits purchase. With share of 12.9% this factor gains significant the third place.

The customers suggest that they are aware of fact that conventional food production has negative effects on environment. Thus, substantial part of them chose organic food purchase, thanks to ecological knowledge. Especially, that are customers with higher or high professional qualifications, while customers with lower education do not suggest this factor as buying motive.

In researches of buying motive of organic fruits, 18.4% of respodents declare a certificate as one of the motives for purchase. It became a rule that retailers, in their business premises, hold a copy of the certification of producers from who they procure organic products. In such a way, if the buyer is in doubt or does not believe in authenticity of the product, the seller will display a certification. With share of 8.9% of total purchase motive of organic fruits, we can infer that the certificate gives confidence to customers.

Regardless of that the certification and control of organic production do not operate in best way in practice, certificate guarantee in certain degree that the product is produced according to the Law on organic production and associated regulations. During visit family Slavnić from Srbobran, we revealed that the supervision is performed once per year, which leaves a space for potential manipulation and misapplications in production. For the time being, everything at us is left to the conscience of manufacturer, will they respect the principles and standards of organic production.

From the other purchase motives, we highlight recommendation, appearance and taste of product, curiosity, packaging, availability and price.

Thanks to recommendation, 10.2% of respondents bought organic fruits. Also, in our study, recommendation is considered to be golden rule of sales. Of all buying motives, recommendation participates with 5%.

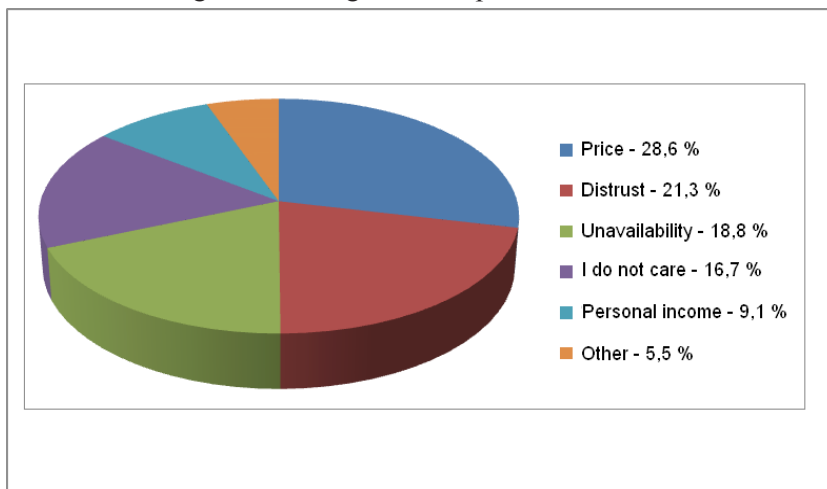
Most customers will say that organic apple is more delicious than those from conventional production, but appearance does not give much confidence, especially for buyers who just should make decision. Organic apple is smaller, sometimes stunted, less aesthetic receptive and easily recognisable.

Nice and aesthetically attractive packaging attracts attention of potential customer. Organic products, nicely and practical packed in biodegradable packaging, are placed on the market, and the example is a fresh organic apple on saucer wrapped with foil.

Limiting Factors of Organic Fruits Demand

Among all respondents, 28.5% of them, beside the other reasons, suggested the price as factor of which they do not buy organic fruits. Beside the price, the mistrust, unavailability in retail, disinterest and low income dominantly affect the customers not to buy organic fruits.

Chart 4. Limiting factors of organic fruits purchase



Source: Authors's research

The research show that customers are mainly determined to pay higher price for organic fruits, but as the price is higher, they are less willing for it.

The prices of organic products vary due to seasonal trends in production and consumption during the time an by location, and on average, they are larger by 20 to 40% compared to conventional products (Ferguson, 2004).

In one study, 73% of customers in USA consider that organic food is too expensive (Carloyn, Oberholtzer, 2009).

The price of organic apple in stores of organic food ranges from 160 to 270 dinars, which is 2 to 3 times higher price than the price of conventional apples. The price of organic fruits is too high for most customers.

Customers' confidence is a key item for success in the market of organic products. Credible certification and labeling are important for customer, so he could be able to diferentiate authentic organic products (Sudarevic, 2007).

Research was conducted in Western Australia, on the basis of which only 50% of participants believe that organic fruits is not chemically treated. A few years later, 89% of customers believe that pesticides are not applied in organic production. Customers more and more believe that organic food is healthier and better for environment than conventional (Bat, Giblett, 1999).

26% of respodents have confidence in domestic organic products, which is not good indicator for further development of market (Vlahovic et al., 2011).

In our study, 36.7% of respodents claim that they do not believe in organic fruits, of those who do not believe that organic food is produced in our country to those who do not believe in the concept of organic production. They consider that the whole concept of organic food production is placed from some marketing, economic and other reasons.

Establishing the confidence is of vital significance for organic producers and traders and the key conditionod advancement of production and traffic.

When it is about supplying the market by organic products, almost the half of respodents say that it is hardly to find them and there are no in stores (Vlahovic et al., 2011).

Customers assert that beside good will to buy organic fruits, there are not organic fruits in retail. Thus, 42.9% of respodents said as one of the reasons why they do not buy organic fruits because there is no in sale.

Income of customers defines their behaviour during the purchase. The average net income of employed in Serbia in April 2016 amounted 49.249,00 dinars or 400 euros (RZS). Comparing with developed countires, this number is significantly lower, while the prices of organic food are approximately at the same level or slightly higher in developed countries. Average income of employed in the EU is bigger by 3 to 4 times compared to Serbia. Low income forces customers to buy food with lower prices as conventional.

In our research, 22.2% of customers do not buy organic fruits because of low income. Low income has significant share with 9.1% , in structure of factors for which the customers do not buy organic fruits. Economic theory and practice show that customers are more likely to buy more expensive and more quality products, by growing living standards, growing real income, respectively. The growth of demand for organic fruits could be expected, if the income of customer was increased.

Regarding to organic fruits is more expensive than conventional, it is quite logical that marketing activities should be directed to customers with bigger incomes. In that context, it is needed to engage on exploring the market of developed countries, where the customers have possibility to afford themselves beside the quantity and quality, too (Matovic, Begovic, 2011).

Conclusion

In Serbia, potential for development of organic fruits market exists. It is necessary to define organic fruits production as strategic, influence in order to exploit comparative advantages in this production, in order to develop it, and by that market also, to achieve higher economic effects and to preserve resources on which production is based.

The organic food market in Serbia is in initial stage of development, it requires level of investment, both in development of the products itself and promotional activities and education of customers.

In order to increase demand for organic fruits, it is necessary to influence on changing mind of customers and establish confidence in organic products and whole system of organic production.

There are a lot of motives for organic fruits purchase, but significant of each is varied among the countries and customers' groups and probably it is being changed over the time. Motives directly related to customers (quality, health safety/ positive impact on health and taste) are more important than others (environment, ethics). This is in agreement with research of Shepher et al. (2005), who suggest the main reasons for choice both, fresh and processed organic food, that it is healthier, with better quality, including better taste.

It is expected that increasing interest for organic fruits will condition the development of market and expansion of traffic flows of organic fruits. Sustainability and further development of organic fruits production is determined by market, or demand, respectively.

Literature

1. Batt, P. J., Giblett, M. (1999): *A pilot study of consumer attitudes to organic fresh fruit and vegetables in Western Australia*, Food Australia, Vol. 51, No. 11, pp. 549-550, Australian Institute of Food Science & Technology, North Sydney, Australia, (available on: <http://eurekamag.com/research/014/894/014894262.php>).
2. Berenji, J., Milenković, S., Kalentić, M., Stefanović E. (2013): *Nacionalna istraživačka agenda za sektor organske proizvodnje*. Nacionalna asocijacija "Serbia Organica",

- Beograd, Srbija.
3. Chang, H. S., Zepeda, L. (2005): *Consumer perceptions and demand for organic food in Australia: Focus group discussions*, Renewable Agriculture and Food Systems, Vol. 20, No. 3, pp. 155-167, Cambridge University Press, Cambridge, UK.
 4. Carolyn, D. and Oberholtzer, L. (2009): *Marketing U.S. Organic Foods: Recent Trends From Farms to Consumers*, Economic Information Bulletin No. 58. U.S. Dept. of Agriculture, Economic Research Service.
 5. FAO (2001): *World Markets for Organic Fruit and Vegetables - Opportunities for Developing Countries in the Production and Export of Organic Horticultural Products*. International Trade Centre Technical Centre for Agricultural and Rural Cooperation Food and Agriculture Organization of the United Nations. Rome. (Dostupno na: <http://www.fao.org/docrep/004/y1669e/y1669e06.htm#bm06>)
 6. Peck, G. M., Andrews, P. K., Reganold, J. P., Fellman, J. K. (2006): *Apple Orchard Productivity and Fruit Quality under Organic, Conventional, and Integrated Management*, Hort Science, Vol. 41, No. 1, pp. 99-107.
 7. Ferguson, J. J. (2004): *World Markets for Organic Fruits and Vegetables*, Institute of Food and Agricultural Sciences, University of Florida.
 8. Kalentić, M., Stefanović, E., Simić, I., Marz, U. (2014): *Organska poljoprivreda u Srbiji 2014*, Nacionalno udruženje za razvoj organske proizvodnje „Serbia organica“, Beograd, Srbija.
 9. Kuzman, B., Stegić, M., Subić, J. (2016): *Market Oriented Approach of Revealed Comparative Advantage in International Trade*, Economics of Agriculture, Vol. 63, No. 1, pp. 247-260, Institute of Agricultural Economics, Belgrade, Serbia.
 10. Lockie, S., Lyons, K., Lawrence, G., Grice, J. (2004): *Choosing organics: a path analysis of factors underlying the selection of organic food among Australian consumers*, Appetite, Vol. 43, pp. 135-146.
 11. Matović, G., Begović, N. (2011): *Poslovniplan: Povećanje konkurentnosti kompanija za preradu voća i povrća kroz umrežavanje*. Udruženje preradivača voća i povrća, Kraljevo, Srbija.
 12. Marz, U., Kalentić, M., Stefanović, E., Simić, I. (2013): *Organska poljoprivreda u Srbiji*, Nacionalno udruženje za razvoj organske proizvodnje „Serbia organica“, Beograd, Srbija.
 13. Milenković, S., Kalentić, M., Stefanović, E., Milenković, A. (2011): *Vodič za organsku proizvodnju jabuke*. Nacionalna asocijacija „Serbia organica“, Beograd, Srbija.
 14. Mitić, S., Gligorijević, M. (2012): *Globalni izazovi i perspective marketinga proizvoda zdrave hrane*, Marketing, vol. 43, no. 3, pp. 205-218, SeMA – Srpsko udruženje za Marketing - Ekonomski fakultet u Beogradu, Beograd, Srbija.
 15. Nguyen P.T. (2013): *Consumers' perceptions of organic food in Australia and other countries: A review*, Journal of Agricultural Economics and Development, Vol. 2, No. 2, pp. 44-54.
 16. Prodanović, R. (2015): *Uticaj relevantnih faktora na proizvodnju, preradu i promet*

- organskog voća*, doktorska disertacija, Fakultet za ekonomiju i inženjerski menadžment, Univerzitet Privredna akademija, Novi Sad, Srbija.
17. Wang, Q. and Junjie, S. (2003): *Consumer preference and demand for organic food: Evidence from a Vermont survey*, American Agricultural Economics Association Annual Meeting Montreal, Canada.
 18. Rakić, B., Rakić, M. (2009): *Upravljanje marketingom organske hrane*, Ekonomika poljoprivrede, vol. 56, no. 3, pp. 453-468, Institut za ekonomiku poljoprivrede, Beograd, Srbija.
 19. Republički zavod za statistiku (RZS), (14 Mart, 2016), (<http://webzrs.stat.gov.rs>)
 20. Richter, T. and Padel, S. (2007): *The European market for organic food. The World of Organic Agriculture-Statistics and Emerging Trends 2007*, pp. 143-154.
 21. Schifferstein, H. and Ophuist, P. (1998): *“Healthrelated determinants of organic food consumption in the Netherlands”*, Food Quality and Preference, Vol. 9, No. 3, pp. 119-133.
 22. Shepherd, R., Magnusson, M.K., Sjoden, P.O. (2005): *Determinants of consumer behavior related to organic foods*, AMBIO: A Journal of the Human Environment, Vol. 34, No. 4, pp. 352-359.
 23. Smith, T. A., Huang, C. L., and Lin, B.H. (2009): *Does Price or Income Affect Organic Choice? Analysis of U.S. Fresh Produce Users*, Journal of Agricultural and Applied Economics, Vol. 41, No. 3, pp. 731-744.
 24. Sudarević, T. (2007): *Ekonomski faktori i marketing aktivnosti u razvoju organske poljoprivredne proizvodnje u Srbiji*, Centar za organsku proizvodnju Zdravo Organic, Selenča, Srbija. (Dostupno na: http://organiccentar.rs/sites/default/files/radovi_sa_foruma/Skripta.pdf)
 25. Vlahović, B., Radojević, V., Živanić, I. (2011): *Istraživanje stavova potrošača o potrošnji organske hrane u Srbiji*. Ekonomika poljoprivrede, vol. 58, br. 3, str. 441-456, Institut za ekonomiku poljoprivrede, Beograd, Srbija.
 26. Willer, H. and Lernoud, J., (Eds.) (2016). *The World of Organic Agriculture. Statistics & Emerging Trends 2016.*, Research Institute of Organic Agriculture (FiBL), Frick and IFOAM – Organics International, Bonn.

TRŽIŠTE I PROMET ORGANSKOG VOĆA U SRBIJI

Radivoj Prodanović⁶, Boris Kuzman⁷, David Jovović⁸, Lazar Ožegović⁹

Rezime

Cilj rada je da se istraži tržište i promet organskog voća, odnosno faktori koji determinišu tražnju, stavov i kupaca i njihovi motivi za kupovinu.

Od metoda koji se primenjuju ključni su anketni upitnik i intervju, a koristi se statistički, grafički i logički metod.

Tržište organskog voća u Srbiji počelo se razvijati poslednjih godina, postoji tražnja, ali malo mobilno. Održivost i dalji razvoj organske voćarske proizvodnje u velikoj meri uslovljen je tražnjom.

Organsko voće kupuje zaposlena žena dobrog materijalnog stanja sa decom, višeg ili visokog obrazovanja, starosti između 30 i 50 godina, sa mestom stanovanja u gradu.

Zdravstven bezbednost, kvalitet, područje proizvodnje i briga za životnu sredinu najvažniji su motivi za kupovinu organskog voća. Sertifikat, preporuka, izgled i ukus proizvoda, znatiželja i pakovanje su od sekundarnog značaja.

Ključni faktori zbog kojih potrošači ne kupuju organsko voće su nedostupnost u kanalima prodaje, visoka cena, nepoverenje u organski proizvod i nizak dohodak.

Ključne reči: *tržište, promet, tražnja, organsko voće, Srbija.*

6 Docent, dr Radivoj Prodanović, Univerzitet Privredna akademija u Novom Sadu, Fakultet za ekonomiju i inženjerski menadžment u Novom Sadu, Cvečarska Ulica br. 2, 21000 Novi Sad, Srbija, Telefon: +381 21 400 484, E-mail: rprodanovic@fimek.edu.rs

7 Vanredni profesor, dr Boris Kuzman, Institut za ekonomiku poljoprivrede, Volgina Ulica br. 15, 11060 Beograd, Srbija, Telefon: +381 63 590 129, E-mail: kuzmanboris@yahoo.com

8 Vanredni profesor, dr David Jovović, Univerzitetu Prištini, Poljoprivredni fakultet, 38219 Lešak, Telefon: +381 28 88 261, E-mail: david.jovovic@pr.ac.rs

9 Vanredni profesor, dr Lazar Ožegović, Univerzitet Privredna akademija u Novom Sadu, Fakultet za ekonomiju i inženjerski menadžment u Novom Sadu, Cvečarska Ulica br. 2, 21000 Novi Sad, Srbija, Telefon: +381 21 400 484, E-mail: ozegetic.lazar@gmail.com

ANALYSIS OF THE SALES AND INCOMES BETWEEN DIFFERENT CATEGORIES OF AGRICULTURAL PRODUCTS

Predrag Vukadinović¹, Aleksandar Damnjanović², Ljiljana Dimitrijević³

Abstract

In this paper, dynamic analysis of the sale and income four different categories of agricultural products on the Republic of Serbia was described. Differentiating incomes by sales points, all of mentioned agricultural categories was stratified and observed as two separate time series. A comparative statistical analysis and correlation structure of their dynamics was investigated. For this purpose, various statistical methods, based on the time series analysis, was used. This analysis has been shown a high correlation between the incomes of the same, as well as different categories of agricultural products. Therefore, this study should indicate in which direction and to what sectors of agricultural production should be to move more intensive budgetary support.

Key words: *agricultural production, time series analysis, comparison, correlation.*

JEL: *Q13, Q14, Q18, M31.*

Introduction

The incomes from the sale of agricultural products are generally achieved through two main sales channels: direct selling in the market via the farmers' market and through the purchase and sale via retail channels organized as a supermarket and other retail outlets. Generated revenues depend on the amount of sales of agricultural products and their prices. The price is affected by many factors that are manifested as the costs of production. These factors in Serbia are also influenced by the state which gives financial support to agriculture in different ways. The level of these costs varies depending on the manner of farm production and the size of the agricultural holding where the production takes place. Those may be smaller agricultural holdings owned by natural persons and larger agricultural holdings owned by legal entities

-
- 1 Predrag Vukadinović Ph.D., Associate Professor, Singidunum University, Danijelova Street no. 32, 11000 Belgrade, Serbia, Phone: +381 11 309 3374, E-mail: pvukadinovic@singidunum.ac.rs
 - 2 Aleksandar Damnjanović Ph.D., Associate Professor, Faculty for Economics "Dositej", Nusiceva Street no. 12a, 11000 Belgrade, Serbia, Phone: +381 64 00 28 388, E-mail: adm.tfc@gmail.com
 - 3 Ljiljana Dimitrijević Ph.D., Assistant Professor, Faculty of Business Economics and Entrepreneurship, Mitropolita Petra Street no. 8, 11000 Belgrade, Serbia, Phone: +381 11 27 62 194, E-mail: ljiljana.dimitrijevic@vspep.edu.rs

that are engaged in agriculture and entrepreneurs. Individual agricultural holdings have far less economic power in relation to the holdings owned by legal entities or entrepreneurs.

Agricultural production, food industry and sales channels of agricultural products, represent the entirety of a process that, and in the light of current economic changes, are gaining global significance. The impact of globalization as a world process, has not bypassed the agri-food industry where concentration occurred at all stages of the food chain (Lovre et al., 2011). The expansion of supermarket chains has also taken on global proportions. In China only, “supermarket revolution” is spreading faster than anywhere else in the world. Annual sale in supermarkets is growing by 30-40% annually, which is 2-3 times faster than in any other developing country (Hu et al., 2004). However, in some parts of the world (New Zealand), a reverse phenomenon happened. In spite of increasing industrialization in the production and sale of agricultural products, which led to market dominance of global corporations, in recent years there has been a “counter-revolution” in the retail of food by means of reoccurrence of farmers’ market (Guthrie et al., 2006). The market cannot exist without the seller and the buyer; this also applies to the market of agricultural products. Direct sales to customers takes place at the farmers’ market, so farmers use this sales channel as the best available channel of sales in the market (Brown, 2002). In response to the increasing competition in the market of agricultural products, new forms of vertical integration are emerging, followed by the agricultural agreement and faster introduction of new technologies (Tomek, Robinson, 2014). Economic incentives for the emergence of new vertical integrations and contracts are greater bargaining power, reduced costs, reduce risk, ensuring of an adequate market entry, improved management, improved market position and development of new quality standards (Codron et al., 2004). An interesting model of market strategy is found in the paper (Brown, Miller, 2008) stating the Community Supported Agriculture as a strategy that results in a situation in which consumers buy “shares” in a farm before planting, and in return, receive a part of the agricultural products that are available every week. These “shares” usually cost several hundred dollars and provide them with the right to get fresh products.

Serbia has begun with the opening of certain chapters in the European Union (EU) accession negotiation process. In the area of agriculture, the EU adopted Common Agriculture Policy (CAP). In the process of harmonization of the agricultural policy with the CAP, Serbia adopted the Strategy for Agriculture and Rural Development of the Republic of Serbia for the period 2014-2024 (hereinafter the Strategy). At the macroeconomic level, the agricultural share in the Gross Domestic Product is about 10% on average, annually. The Republic of Serbia allocates to agriculture one part of the budget for subventions, with the intention of thereby influencing the development of agriculture. However, certain analyses for the period 2005-2013 (Jović et al., 2015) indicate that there is no clear link between subventions and newly added value. The share of agriculture in total employment is over 20%. The foreign trade balance of agriculture is in surplus. The main resource of agricultural production, land, occupies an area of 5,069,000 hectares. Most of this land is used by agricultural holdings - according to the census from 2012, there are 631,522 agricultural holdings in Serbia. The average size of land used per holding is 5.4 ha. In the structure of agricultural holdings, 99.6% belong to natural persons that use 82% of the area. The remaining 0.4% are legal entities that use 16% of

the area with an average agricultural holding size of 250 ha. The participation of individual farms and their symbolic organizing in cooperatives is dominant, as well as the low level of merchantability and intensity of production (Pejanović 2009). The low technological level of agricultural holdings exposes them to the risk of the influence of atmospheric conditions, flooding and other risks. Therefore, insurance would have a significant role in the prevention of these risks. The new regulation in line with the Solvency II Directive EC/2515/06 will mean greater security for farmers in respect of compensation in case of manufacturing risks (Njegomir et al., 2014). Agricultural production in fruit, vegetable and poultry is increasing, while the decline is observed in dairy production. The reduction in the number of dairy cows by 34% certainly contributed to this situation. Modern and advanced business conditions of farmers should lead them to think strategically, while being focused on more efficient associating in cooperatives, which should facilitate their participation in the market. The performance on the market is accompanied by many problems, mostly by jeopardizing of the competition due to the behaviour of those participants who abuse their position in the market. Therefore, the question is whether the state has mechanisms to subject this unfair market behaviour to sanctions (Milanović et al., 2009). In relation to the land as the most important resource of agriculture, there are certain, still unsolved, problems. In addition to the small size of the private agricultural holdings, there is a problem of fragmentation of plots since land consolidation was not carried out fully (the average number of plots per agricultural holding is six). Overall economic strength of a family holding is 5,939 euros, and if this indicator is observed according to the structure of holdings, then the average economic strength of a family holding is 4,990 euros, while the average economic power of a holding owned by a legal entity or an entrepreneur is 204,755 euros (Paraušić, Cvijanovic, 2012). In addition to direct production support measures, structural measures and rural development measures and other measures, little attention is paid to innovative procedures and environmental protection, which may be used for obtaining valuable resources to be used in agriculture. One of them is the treatment of wastewater and correct treatment of sludge that is produced after wastewater treatment, which after processing has valuable agronomic properties. Such usage of sludge in agriculture is in accordance with Directive 68/278/EEC (Piukovic-Babičković et al., 2016). The field of ecology and environmental protection (especially water), when it comes to the consumption of mineral fertilizers, was not treated appropriately. There is a profound adverse impact on the environment due to inadequate law enforcement and infrastructure deficiencies in the field of ecology (Roljević et al., 2012).

Research in this study is aimed at assessing the degree of correlation between the revenues earned through the purchase and sale via supermarkets and other retail outlets in relation to the revenues from the sale of agricultural products to the farmers' market. The research covered four sectors of agricultural production in Serbia: fruit, vegetable, poultry and dairy. Products from these four sectors of agricultural production constitute 31.2% of agricultural production in Serbia (Statistical Yearbook of Serbia, 2016). The results of the research showed that there is a high degree, and in some cases, very high degree of correlation between the researched revenues. The significance of the obtained results is that they are connected with financing (budget support) of agricultural production by the state. Using

the example of selected types of agricultural products, it has been pointed out towards what sectors of agricultural production the flows of funding from the state (agrarian) budget should be more intensely directed to.

Methodology

The main aim of this work is investigation of dynamics and the correlation structure between incomes of different agricultural products, according to kind of product, as well as by their sale points. For this purpose, the agricultural products are classified into four different categories:

- A. Fruit and grape;
- B. Vegetables;
- C. Chicken and eggs;
- D. Milk and milk products.

On the other hand, the dynamics of sales and incomes from all the above categories of agricultural products was stratified based on two types of sales points:

- 1. Sale and purchase of agricultural products-Sector A (SA-abbreviation of the author);
- 2. Sale of agricultural products on farmers' markets-Sector B (SB-abbreviation of the author).

In view of their theoretical design, all of statistical methods that we use in our research can be classified into following three groups:

- 1. Contemporary analysis of the dynamics of incomes (or other quantitative indicators) in the agricultural sector show relatively stable changes (Chattopadhyay, 2001; Roy, Bezbaruah, 2002). Therefore, their long-term development tendencies here

is described by *the function of exponential trend* $\hat{y}_t = b_0 \cdot b_1^x$. In addition, for all the above-mentioned series of agricultural categories has been calculated the corresponding *coefficient of determination*:

$$R^2 = \frac{\sum_{i=1}^N (\hat{y}_i - \bar{y})^2}{\sum_{i=1}^N (y_i - \bar{y})^2}$$

where N is number of observations, i.e., the length of observed series (y_i), and \bar{y} is the mean values. As it is well-known, this coefficient represents the relative measure of fitting the trend line with the empirical data, i.e., the level of the explained variability in corresponding theoretical (trend) model. It takes values between 0 and 1, where higher values of R^2 indicate to higher quality of fitting. Finally, estimated values of the parameter b_1 in the exponentially trend function indicates to the degree of change (increase) of observed time series. Based on it, it can be defined the so-

called *Exponential Growth Rate (EGR)*:

$$r = (b - 1) \cdot 100.$$

This indicator describes the average relative growth of the time series during observed period.

2. In the second part of our statistical analysis, we tested the significance of the means and variability equality in SA and SB time series, for all four afore-mentioned categories of agricultural products. For this purpose, we used three different kind of statistical testing:
 - (i). *Student's (t) test* compares the averages (means) of the two data series, and shows to significance of their differences. It is an usually used in the cases of "small" samples, and gives a decision of accepting or rejecting the null hypothesis of the mean values equality (Hazewinkel, 2001);
 - (ii). *Mann-Whitney's (U) test* is a nonparametric test of the null hypothesis that the medians of two data series are equal. This is non-parametric test, based on the ranks of the data (Lehmann, 2006). Mann-Whitney's test is nearly efficient as the Student's test, but in contrast to it, does not require the assumption of normal distributions.
 - (iii). *Fisher's (F) test* is a statistical test in which the null hypothesis assumes that two normal populations have the same variance. The test statistic is the ratio of two sample variances and, additionally, this test can be used to comparison of two variances (Markowski & Markowski, 1990).
3. At last, correlation between different series can be precisely determined using well-known, *Pearson's product moment correlation coefficients (r)*,

$$r = \frac{n \sum xy - \sum x \sum y}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}.$$

The coefficient r is a quantitative measure of dependence and correlation between certain agricultural categories (labeled as x, y). It takes a value of -1 to 1, depending on the direction and the strength of correlation between x and y . If $r > 0$ there is a direct correlation, while for $r < 0$ correlation is inverse. In order to qualitative determination the strength of the correlation, we use the following interpretation of r , i.e. its absolute value $|r|$:

- 0.0 – 0.7: Weak correlation;
- 0.7 – 0.8: Emphasized correlation;
- 0.8 – 0.9: High correlation;
- 0.9 – 1.0: Very high correlation.

In addition, the dynamic and correlation's structure of the incomes between the same agricultural categories, in comparison to their sales point (SA and SB series) was investigated, using regression analysis. In that way, a functional form that more precisely describes the dependence of these two kind of series was obtained.

Results and discussion

In this section, dynamic and correlational statistical analysis of income of agricultural products is investigated. Quantitative indicators of incomes realized through sale of agricultural products in the period 2009-2015, in percentages, are shown in Table 1.

Table 1. Incomes of agricultural products, stratified by market places (in percentages).

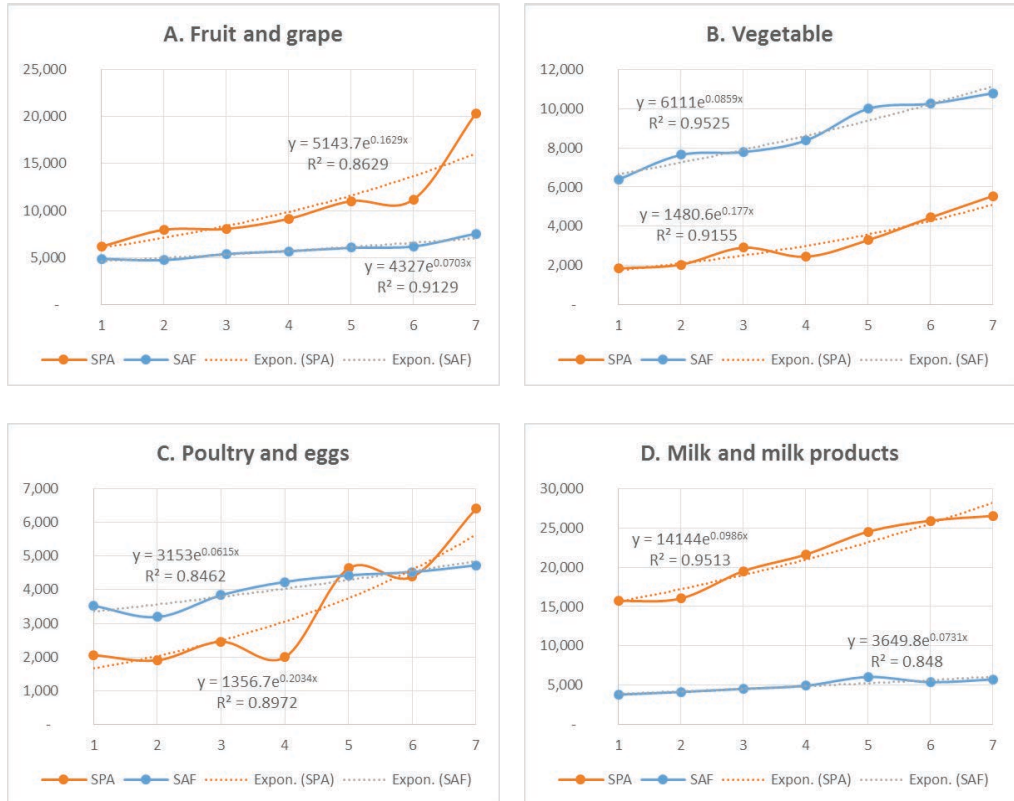
Year	A. Fruit and grape		B. Vegetable		C. Poultry and eggs		D. Milk and milk products	
	SA	SB	SA	SB	SA	SB	SA	SB
2009	55.94	44.06	22.50	77.50	36.90	63.10	80.47	19.53
2010	62.63	37.37	21.16	78.84	37.43	62.57	79.44	20.56
2011	59.87	40.13	27.22	72.78	39.04	60.96	81.12	18.88
2012	61.61	38.39	22.65	77.35	32.10	67.90	81.39	18.61
2013	64.52	35.48	24.83	75.17	51.13	48.87	80.19	19.81
2014	64.33	35.67	30.27	69.73	49.20	50.80	82.78	17.22
2015	72.89	27.11	33.96	66.04	57.53	42.47	82.18	17.82

Source: Statistical Office of the Republic of Serbia - Statistical Yearbook of Serbia, 2010-2016.

Presented data, grouped in the form of time series, indicate to percentage growth of the SA-series in total incomes. On the other hand, the decrease in percentage share of SB-series in total incomes in the market can be seen, in all kinds of agricultural products. In category A can be seen that the series increases from 55.94% in 2009 to 72.89% in 2015. In the same category, SB-series has a drop in percentage share of total revenues with 44.06% in 2009 to 27.11% in 2015. Exception is 2011, where there was a temporary pause in growth of SA-series and a temporary recovery of SB-series. Category B contains an identical changes in percentages of SA-series and SB-series. Remark that the SA-series grows with 22.50% in 2009 to 33.96% in 2015, while SB-series has a drop of percentage of the total incomes with 77.50% in 2009 to 66.04% in 2015. The exceptions are 2010 and 2012 in which there is a temporary decrease of SA-series, and a temporary increase of SB-series. Category C contains the most interesting changes. It is apparent significant change in the percentage share of the income earned in the market with the SB-series. This change is manifested by SA-series from the initial 36.90% in 2009, rising to 57.53% in 2015. In this way, it takes dominance in relation to the SB-series, which decreases from 63.10% in 2009 to 42.47% in 2015. In this change, two moments are important. In 2012, the value of SA decreases from 39.04% to 32.10%, while SB increases from 60.96% in 2011 to 67.90% in 2012. The dramatic shift is taking place in 2013 when the SA achieved significant growth with 51.13% in 2013. On the other hand, SB decreases from 67.90% in 2012 to 48.87% in 2013. In this year, SA-series, in the comparison to SB-series, takes dominance on the market. Finally, category D indicates the smallest fluctuations. SA-series is constantly growing with minimal changes, from 80.47%

in 2009 to 82.18% in 2015, while SB-series down from 19.53% in 2009 to 17.82% in 2015. The exception is 2010, when there was a minimal decrease in SA and minimal growth SB. Their dynamics in the mentioned period, expressed in millions of dinars, is also graphically illustrated (*Figure 1*).

Figure 1. Income dynamic of the agricultural categories in period 2009-2015 (10^6 RSD).



Source: Statistical Office of the Republic of Serbia - Statistical Yearbook of Serbia, 2010-2016;

Note: Computation in Excel: Damnjanović, Vukadinović, 2017.

Let us point that all of observed time series, i.e., incomes realized from the sale of agricultural products, shows the growth which, in the most cases, can be expressed with exponential trend. For this purpose, in Figure 1 are plotted the appropriate trend lines, along with the estimated values of the coefficient of determination (R^2). Remark that, in the most of observed time series, estimated values of the coefficients of determination are significantly high. This means that dynamics of realized incomes can be explained according the appropriate models of exponential trend.

Chart of the dynamics of category A shows the value of income generated by years of the time series generated from the sale of fruits and grapes. In the reporting period, income grew continuously. In 2009, revenues amounted to 6,191 million RSD, while in 2015 this income

amounted to 2.0344 million RSD. During this period, there was a significant change in income growth. Until 2014, income had a balanced growth and amounted to RSD 11,194 million, and in 2015 there was a very high growth in these revenues to 20,344 million RSD. Line of the exponential trend is growing, and indicates further revenue growth. The coefficient of determination ($R^2 = 0.8629$) is high, so that the representativeness of the model is satisfactory. More precisely, 86.29% change is explained by this model, i.e. exponential trend shows a high degree of reliability. On the other hand, changes in SB-series are evenly and without major fluctuations. Income from sales in green markets grew by 4,876 million dinars in 2009 to 7,568 million dinars in 2015. Balanced growth is confirmed by the coefficient of determination ($R^2 = 0.9129$), which indicates a very high representativeness of the models. According to obtained exponential trends, it can be seen much faster growth in revenues of the SA-series compared to SB-series, so it can be predicted that the differences in actual revenues in the future will be more pronounced. Series of

Category B are characterized by the dominance of realized revenues of the SB-series, in relation to the SA-series. Incomes of the SB-series increased from 6,399 million dinars in 2009 to 10,790 million dinars in 2015. The exponential trend line indicates the further growth of Incomee. The coefficient of determination ($R^2 = 0.9525$) is very high, what indicates that the 95.25% variability can be explained by this model. In the case of SB-Series incomes grew to 1,858 million dinars in 2009 to 5,549 million dinars in 2015. The exponential trend line indicates the further growth of revenue. The coefficient of determination ($R^2 = 0.9155$) is very high, and it indicates a very high degree reliability of trend lines. The obtained exponential trends of both series can be seen that the growth in incomes of SA faster than SB revenues.

Category C is the most interesting. Line revenues show two quite different trends in revenues per year in the observed series. Annual changes of growth revenue SB are smooth and without larger fluctuations. This income grew to 3,526 million dinars in 2,009 to 4725 million dinars in 2015. On the other hand SA revenues shows significant changes in revenue trends. After growth in 2011 of 2,459 million dinars, it comes to decline in revenue in 2012 at 2,001 million dinars. In 2013 there is a significant change in the growth of revenue so that the revenue from 2012 to 2,001 million dinars increased to 4,663 million. This year (2013) comes to a change in dominance between the income earned from the SB. Revenue growth SA assumes dominance in comparison to the SB, and in the period 2014-2015, it is significantly exceed income SB. SB exponential trend line shows a further increase in revenue. The coefficient of determination ($R^2 = 0.8462$) is high, what indicates high reliability of trend line. SA trend line also indicates to the revenue growth. The coefficient of determination ($R^2 = 0.8972$) is high and exhibits high reliability of the trend line, also. Looking at the trend lines of SA and SB incomes, it can be concluded that both lines showed revenue growth, but trend line of SA-series shows significantly faster growth in revenue compared to revenue growth SB-series.

Finally, in category D is indicative the dominance of SA incomes. The trend line shows steady growth in SA incomes from 15,707 million dinars in 2009 to 26,528 million dinars in 2015. The coefficient of determination ($R^2 = 0.9513$) indicates the very high

reliability of the trend. The trend line of the SB incomes also pointed to the steady growth of revenues from 3,813 million dinars in 2009 to 5,752 million dinars in 2015. It indicates the further revenue growth, and the coefficient of determination ($R^2 = 0.848$) showed a high degree of reliability of the trend.

As it can be easily seen, in the case of category A and D, we can notice the significantly higher incomes in the market stores, particularly in last few years. On the other hand, in the case of category B, it is evident dominant incomes in green markets, while dynamic of SA and SB series in category C is the most interesting. Namely, until 2012, the incomes from the sale of poultry and eggs was significantly higher in the green markets. After that, there is a growing dominance of market trades and this trend will certainly continue in the future. Finally, the estimated value of the coefficient of the exponential trend enable calculation of the so-called *Exponential growth rates (EGR)*. Their values, for all of the above time series together with other basic statistical indicators, are given in Table 2. Obviously, the highest indicator of growth of income has the time series which is related to sale of poultry and eggs in stores, SA in Series C (EGR=22.56%). In contrast, sales on green markets SB of the same series shows the lowest increase of the realized incomes (EGR=6.34%).

Table 2: Summary statistics of observed time series (10^6 RSD).

Statistics	A. Fruit and grape		B. Vegetable		C. Poultry and eggs		D. Milk and milk products	
	SA	SB	SA	SB	SA	SB	SA	SB
Min	6,191	4,752	1,858	6,399	1,908	3,190	15,707	3,813
Median	9,141	5,696	2,912	8,374	2,459	4,233	21,618	4,942
Average	1,056	5,795	3,225	8,748	3,407	4,067	21,407	4,950
Max	20,344	7,568	5,549	10,790	6,401	4,725	26,528	6,059
Stan. Dev.	4,316	885	1,245	1,502	1,619	523	4163.2	772
Variation	40.87%	15.26%	38.61%	17.17%	47.53%	12.86%	19.45%	15.59%
EGR	17.69%	7.28%	8.97%	19.36%	22.56%	6.34%	10.36%	7.58%

Source: Computation in Excel: Damnjanović, Vukadinović, 2017.

In the following, results of the aforementioned statistical tests, i.e., computed values of their test statistics, along with the appropriate p -values and the numbers of degrees freedom (df) are given (Table 3). Results obtained using Student's test, by conventional criteria, consider to extremely statistically significant means difference in categories A, B and D. On the other hand, in the case of category C, p -values $0.2350 > 0.05$ indicates that no significant difference between the means of the SA and SB series. Almost identical conclusions can be made according to results obtained by nonparametric Mann-Whitney test. In contrast to that, results obtained by using Fisher's test indicates that no significant difference detected only between the variances of the SA and SB series, i.e., only in the case of incomes realized by vegetable's sale (category B).

Table 3: Results of statistical testing of observed time series.

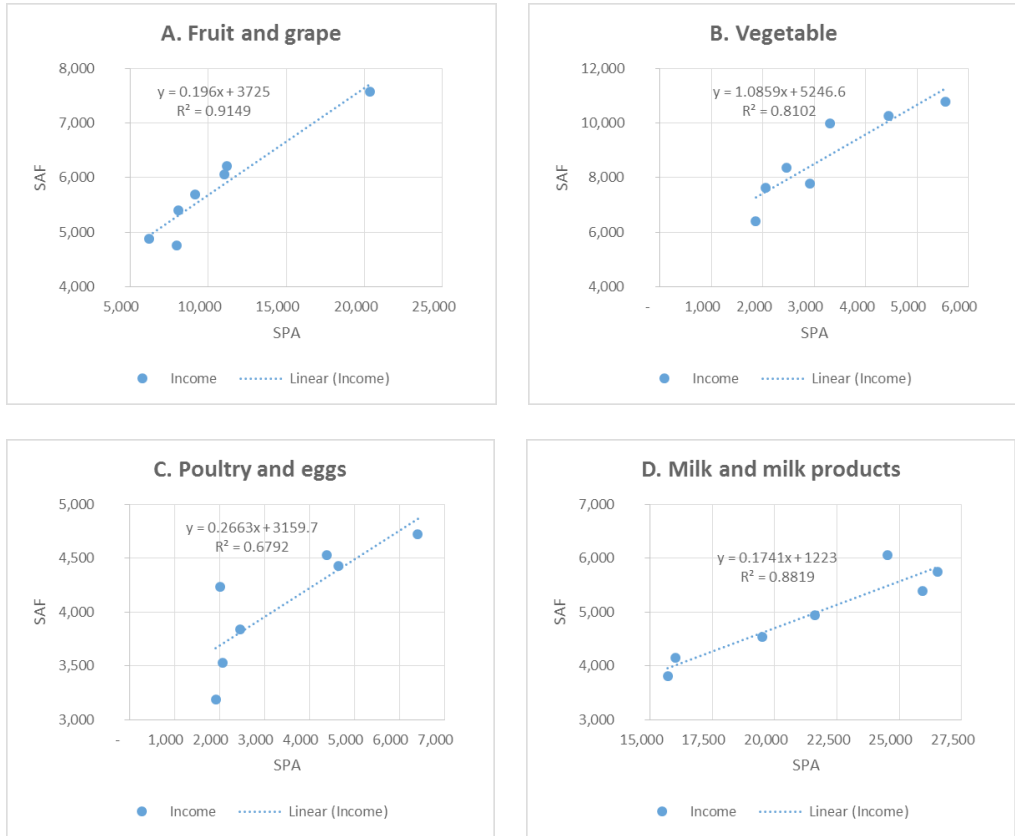
Test		A. Fruit and grape	B. Vegetable	C. Poultry and eggs	D. Milk and milk products
Student	Statistic	3.35	-6.93	-1.32	11.69
	p-values	153E-02**	< 1.E-04**	0.2350	< 1.E-04**
	df	6	6	6	6
Mann-Whitney	Statistic	2	0	17	0
	p-values	4.96E-03**	2.14E-02**	0.3735	2.14E-02**
	df	6	6	6	6
Fisher	Statistic	23.81	1.46	9.58	29.09
	p-values	6.16E-02**	0.3287	7.29E-02**	3.49E-04**
	df	12	12	12	12

Source: Computation in programming language “R”: Damnjanović, Vukadinović, 2017.

Finally, in the third part of our research, it has been investigated the distribution and the correlation structure of the aforementioned time series. For this purpose, in the first step, it was analyzed the significance and the differences between the incomes of dynamic agricultural categories, in comparison to their sales point. In Figure 2 is shown these dependences, along with the appropriate regression lines. It is obvious that in the most of observed agricultural categories there exists a significantly high correlation (in category A, especially). The only exception is incomes from the sale of poultry and eggs (category C), where the estimated value of the coefficient of determination, and consequently, the so-called Pearson linear coefficient of correlation (R^2), is not very high. The determination coefficient of the series in category A is the largest (91.49%) and at the same time, it shows to a very high degree of correlation. In category B degree of determination is high and amounts to 81.02%. Category C has a somewhat lowest level of determination which is equal 67.92%. Finally, SA and SB series in category D show a high degree of correlation, equal 88.19%.

Therefore, we analyzed more precisely the relationship between the different series using the Pearson’s product moment correlation coefficients. Table 4 illustrates the overall with the statistical significance of .001. When considering the same agricultural categories, it is confirmed the earlier observed highest correlation between SA and SB in category A, where Pearson’s product moment correlation coefficients is equal $r = 0.9565$. After that, it follows the cross-correlation between different categories: SA in category B with SB in category A, which is approximately equal 95%. Let us remark that all of the others estimated values of the Pearson’s correlation coefficients are relative high (the lowest value is greater than 70%). Cross-correlation computed using Pearson’s product moment correlation coefficients shows the highest degree between SA and SB series in category A, which is equal 95.65%. Degree of correlation between SA and SB series in category B is also very high and is equal 90.01%. In the category C correlation is high and is equal 82.41%, while in category D is very high and is equal 93.91% .

Figure 2. Regression between the same agricultural categories, stratified by sales points.



Source: Computation in Excel: Damjanović, Vukadinović, 2017.

Table 4. Correlation coefficients between agricultural categories.

Correlation		A.		B.		C.		D.	
		SA	SB	SA	SB	SA	SB	SA	SB
A.	SA	1.0000							
	SB	0.9565	1.0000						
B.	SA	0.9157	0.9502	1.0000					
	SB	0.8278	0.8918	0.9001	1.0000				
C.	SA	0.9117	0.9319	0.9375	0.9026	1.0000			
	SB	0.7508	0.9063	0.8403	0.8877	0.8241	1.0000		
D.	SA	0.7765	0.9048	0.8875	0.9645	0.8643	0.9728	1.0000	
	SB	0.7166	0.8238	0.7611	0.9415	0.8369	0.8991	0.9391	1.0000

Source: Computation in programming language “R”: Damjanović, Vukadinović, 2017.

Conclusion

The revenues generated from the sale of agricultural products are dominant in organized retail channels in the case of the revenues from the sale of fruit, and milk and dairy products. When it comes to the revenues from the sale of poultry and eggs, these revenues have become dominant since 2013. Until this year, the markets were able to deliver higher revenues. In the case of vegetables, the dominance of the revenues generated from sales in markets is apparent. Sales revenues in both sales channels for all four types of agricultural products show a trend of further growth and an expected generating of higher revenues in the future. *Exponential growth rates (EGR)* show that the highest growth rate belongs to the revenues generated from the sale of poultry and eggs in the retail channel, while the lowest belongs to the sale of poultry and eggs at the markets. Revenues from other types of products are of lower but more stable EGR. The established degree of correlation of revenues is high in the case of revenues from the sale of vegetables and milk and milk products, and it is very high in the case of revenues from the sale of fruit. The lowest correlation was found for the revenues from the sale of poultry and eggs. A more precise correlation was determined using Pearson's product moment correlation coefficients. Cross-correlation, showed that the greatest degree of correlation comes from the revenues generated from the sale of fruit (very high = 95.65%), followed by revenues from the sale of milk and dairy products (very high = 93.91%), followed by the degree of correlation of revenues generated from the sale of vegetables (very high = 90.01) and the lowest degree of correlation of revenues generated from the sale of poultry and eggs (high = 84.41%). The obtained results show a high or very high degree of correlation of the researched revenues. These results may indicate to the agrarian policy makers, that the financing of the production of the researched types of agricultural products, can improve the efficiency and productivity of agricultural production in the sectors of fruit and vegetables, poultry and dairy. More intensive financing of these sectors will accelerate the trend of revenue growth of agricultural producers, stabilize their income, which will make them less dependent on all forms of borrowing, and will create a space for them to finance their own development. We should not ignore the fact that the number of small individual agricultural holdings is very large or the share of the employed persons in agriculture in the total number of employees in Serbia. If the researched sectors of agricultural production would be more intensely funded, a space for new work places would be opened, as well as the development through investments coming from own resources much more than before. The way would be paved for new technologies and knowledge, which would reduce production costs, the prices would be more competitive and farmers would be less dependent on subventions and other forms of budget support.

Literature

1. Babicković, B.P., Vojinović, Z., Vukadinović, P. (2016): *Innovative wastewater treatment as a prerequisite for the use of sludge in agriculture*. Ekonomika Poljoprivrede, Naučno društvo agrarnih ekonomista Balkana, vol. 63, no. 2, pp. 471-484, Beograd.
2. Brown, A. (2002): *Farmers' market research 1940–2000: An inventory and review*. American Journal of Alternative Agriculture, Cambridge University, vol. 17, no. 4, pp.

- 167-176, New York.
3. Brown, C., Miller, S. (2008): *The impacts of local markets: a review of research on farmers markets and community supported agriculture (CSA)*. American Journal of Agricultural Economics, Cambridge University, vol. 90, no. 5, pp. 1298-1302, New York.
 4. Chattopadhyay, A. (2001): *Growth, Stability and Equity in Agriculture – A Quantitative Analysis* (ISBN 81-7022-923-5). Concept Publishing Company, New Delhi, India.
 5. Guthrie, J., Guthrie, A., Lawson, R., Cameron, A. (2006): *Farmers' markets: the small business counter-revolution in food production and retailing*. British Food Journal, Emerald Publishing Limited, vol. 108, no. 7, pp. 560-573, Bingley, United Kingdom.
 6. Hazewinkel, M., ed. (2001): *Student test, in: Encyclopedia of Mathematics* (ISBN 978-1-55608-010-4). Springer, Cham, Switzerland.
 7. Hu, D., Reardon, T., Rozelle, S., Timmer, P., Wang, H. (2004): *The emergence of supermarkets with Chinese characteristics: challenges and opportunities for China's agricultural development*. Development Policy Review, John Wiley & Sons, vol. 22, no. 5, pp. 557-586, Atrium, UK.
 8. Jovic, L., Kosanovic, N., Vukadinovic, P. (2015): *Analysis of subventions for agriculture in republic of serbia and republic of srpska*. Ekonomika Poljoprivrede, Naučno društvo agrarnih ekonomista Balkana, vol. 62, no. 4, p. 963, Beograd.
 9. Lehmann, E. L. (2006): *Nonparametrics: Statistical Methods Based on Ranks*. (ISBN 978-0-387-35212-1): Springer, New York.
 10. Lovre, K., Gajić, M., Kresoja, M. (2011): *Globalizacija i održivi razvoj poljoprivrede*. Tematski zbornik: Agrarna i ruralna politika u Srbiji nužnost ubrzanja reformi, 2011, Beograd, Društvo agrarnih ekonomista Srbije, pp. 1-10.
 11. Markowski, C.A., Markowski, E. P. (1990): *Conditions for the Effectiveness of a Preliminary Test of Variance*. The American Statistician, Taylor & Francis, vol. 44, no. 4, pp. 322–326, Abingdon, UK.
 12. Milanović, M., Mihailović, B., Paraušić, V. (2009): *Elementi konkurencije i strukturne tipologije agrarnog tržišta u Srbiji*. Ekonomika poljoprivrede, Naučno društvo agrarnih ekonomista Balkana, vol. 56, no. 4, pp. 317-324, Beograd.
 13. Njegomir, V., Tepavac, R., Obradović, M. (2014): *Upravljanje i poslovanje osiguravajućih društava u uslovima Solventnost II direktive*. Ekonomika poljoprivrede, Naučno društvo agrarnih ekonomista Balkana, vol. 61, no. 3, pp. 587-601, Beograd.
 14. Paraušić, V., Cvijanović, D. (2012): *Ekonomska veličina poljoprivrednih gazdinstava u Srbiji i preporuka mera za njihovo osnaživanje*. Zbornik radova -Završna konferencija Primena podataka popisa Poljoprivrede, 28-30. maj 2014.godine, Subotica, Republički zavod za Statistiku, pp. 25-42.
 15. Pejanović, R. (2009): *Razvojni problemi poljoprivrede Republike Srbije*. Agroekonomika, Poljoprivredni fakultet u Novom Sadu, 2009 no. 41-42, pp. 5-23.
 16. Roy, N., Bezbaruah, M. P. (2002): *Agricultural growth and regional economic development – A Study of Barrak Walley* (ISBN 9788170998457). Mittal Publications,

New Delhi, India.

17. Roljević, S., Nikolić, A., Tepavac, R. (2012): *The Consumption of Mineral Fertilizers and Water Resources' Quality in the European Union and the Republic of Serbia*. Economics of Agriculture, Balkan Scientific Association of Agrarian Economists vol. 59, no. 1, pp. 139-146 Belgrade.
18. Službeni glasnik Republike Srbije (2014): *Strategija poljoprivrede i ruralnog razvoja republike Srbije za period 2014-2024. godine*, Poljoprivreda, Beograd.
19. Tomek, W. G., Robinson, K.L. (1990): *Agricultural product prices* (ISBN 9780801424519). Cornell University Press, Ithaca, New York, USA.
20. Volk, T., Erjavec, E., Mortensen, K., FAO/United Nations (2015): *Poljoprivredna politika i evropske integracije u jugoistočnoj Evropi* (ISBN 978-608-4760-18-4), Budimpešta, Mađarska.

ANALIZA PRODAJE I PRIHODA RAZLIČITIH KATEGORIJA POLJOPRIVREDNIH PROIZVODA

Predrag Vukadinović⁴, Aleksandar Damnjanović⁵, Ljiljana Dimitrijević⁶

Abstrakt

U ovom radu je opisana dinamička analiza prodaje i prihoda četiri različite kategorije poljoprivrednih proizvoda na teritoriji Republike Srbije. Diferencijacijom prihoda po prodajnim mestima, sve navedene kategorije su stratifikovane i posmatrane kao dve različite vremenske serije. Komparativna statistička analiza i korelaciona struktura njihovih dinamika je ispitana. U tu svrhu korišćene su različite statističke metode, zasnovane na analizi vremenskih serija. Ova analiza je pokazala visoku korelaciju između prihoda istih, kao i različitih kategorija poljoprivrednih proizvoda. Stoga, ovo istraživanje treba da ukaže u kom smeru i ka kojim sektorima poljoprivredne proizvodnje treba da se kreće intezivnija budžetska podrška.

Ključne reči: poljoprivredna proizvodnja, analiza vremenskih serija, komparacija, korelacija.

4 Vanredni profesor, dr Predrag Vukadinović, Univerzitet Singidunum, Danijelova Ulica br. 32, 11000 Beograd, Srbija, Telefon: +381 11 309 3374, E-mail: pvukadinovic@singidunum.ac.rs

5 Vanredni profesor, dr Aleksandar Damnjanović, Fakultet za ekonomiju "Dositej", Nusiceva Ulica br. 12a, 11000 Beograd, Srbija, Telefon: +381 64 00 28 388, E-mail: adm.tfc@gmail.com

6 Docent, dr Ljiljana Dimitrijević, Visoka skola za poslovnu ekonomiju i preduzetništvo, Ulica Mitropolita Petra br. 8, 11000 Beograd, Srbija, Telefon: +381 11 27 62 194, E-mail: ljiljana.dimitrijevic@vspep.edu.rs

THE POSSIBILITIES AND LIMITATIONS OF ENTREPRENEURSHIP DEVELOPMENT IN AGRICULTURE IN SERBIA

Jugoslav Aničić¹, Svetlana Vukotić², Goran Maksimović³

Summary

The Republic of Serbia is very convenient for agricultural production: large, high-quality arable land, favourable climate conditions for all agricultural cultures, rich flora and fauna, rich tradition and developed scientific institutions are the priceless treasure of Serbian agriculture. However, the results of numerous research show that Serbian agriculture competitiveness is based on cheap production factors compared to other countries (soil, workforce, other inputs). One of the ways of solving this situation is larger application of entrepreneurial type of production in agribusiness, for which there are great possibilities in Serbia. This paper analyses the position of agriculture at the moment, and points out the importance and the need for faster and wider development of an entrepreneurial orientation in this sector. Serbia is in the EU accession process, and therefore the imperative of approaching the European model of doing business and the need for companies and family economies in agribusiness to build and protect their competitive advantages. In order to achieve this goal, traditional weaknesses should be overcome, so education and introduction of entrepreneurship into the school system are a good basis for farmers to have a stronger influence on the economic policy carriers as well as the adequate treatment of agricultural sector at the macroeconomic level.

Key words: *agriculture, entrepreneurship, agricultural policy, competitiveness*

JEL: *Q13, Q17*

Introduction

Agricultural producers in Serbia are nowadays faced with the changed conditions of doing business, reflected in much bigger competition in the domestic market on one hand, and the

1 Jugoslav Aničić Ph.D., Associate Professor, Union - Nikola Tesla University, Cara Dušana Street no. 62-64, 11000 Belgrade, Serbia, Phone: +381 11 328 69 61, E-mail: ajugoslav@yahoo.com

2 Svetlana Vukotić Ph.D., Associate Professor, Union - Nikola Tesla University, Cara Dušana Street no. 62-64, 11000 Belgrade, Serbia, Phone: +381 63 801 61 86, E-mail: cecavukotic@gmail.com

3 Goran Maksimović Ph.D., Associate Professor, University of Priština, Faculty of Agriculture, Kopaonička Street nn, 38219, Lešak, Serbia, Phone: +381 63 419 757, E-mail: goran.maksimovic@pr.ac.rs

open possibilities of exit into the large international markets of the EU, Russia and others on the other. The exit into foreign markets is possible if the products are competitive compared to the foreign producers. That competitiveness must not be based on the low cost of input alone, but also the application of modern knowledge and innovations, that is, the synergy effect of all the competition factors. Knowledge is the key factor of competition in the modern global economy, so that knowledge acquisition and application can successfully substitute the limitations of certain resources and enable reaching better effects with less input.

Positive experiences of the developed countries show that entrepreneurship is an important factor in the complete economic development, and therefore agribusiness as well. With the age of growing uncertainty at the global level, and a large number of countries entering the processes of social and economic transition business activities have reduced so entrepreneurship has become the main catalyst for the economic development. Entrepreneurship is the ability of undertaking activities with the aim of achieving the desired goal, considering the readiness to fight against obstacles, uncertainty and risks. Population, employment, the battle against poverty and environmental protection with the condition of productivity increase and business efficiency are in the focus of entrepreneurship.

Although many strategic documents point out a great importance of agriculture and rural areas, the state and local governments have still not created sufficiently incentive social and economic environment for rural and agricultural development, especially in certain regions and areas of the Republic of Serbia. There are many weaknesses present; unfavourable age structure, old-fashioned mechanisation, unregulated market of agricultural products and uncertain placement, insufficient melioration, undeveloped rural infrastructure, mechanisation, price disparity, etc. SMEs and entrepreneurship in agriculture development can largely reduce the above mentioned weak points and turn them into development chances of our country. This is true, especially considering the trends of growing demand for (organic) agriculture products, rural tourism development, European integrations, as well as the announced greater support of the state for the development of this sector.

The aim of this paper is to point out the low level of entrepreneurship development in Serbia in general, especially in agriculture. Numerous examples of the developed countries show the results that can be achieved by entrepreneurship development in rural areas, such as: local economy competition increase, employment, population life quality improvement, etc. Serbia can turn its comparative advantages in agriculture into competition advantages through entrepreneurship development, considerably contribute to public debt and unemployment decrease, foreign trade balance improvement and prevent unfavourable demographic movement of the population.

Methodology

This paper is based on qualitative and quantitative analysis. The qualitative analysis of the focus has rich theoretical examination. Represented by and analysis of relevant literature related to entrepreneurship, agriculture and the link with agriculture. Points of consideration are based on settings by means of descriptive of entrepreneurship in general. According to

deduction principle we our research pointed to agricultural production, i.e. towards enterprise orientation in this area.

We analyse quantitatively global index of entrepreneurship. We also performed a comparative analysis of this index with countries in the region. Further quantitative research based on official statistical data had the function to show the place and importance of agriculture in participation of GDP, employment, foreign trade, etc. On the basis of all of the settings and their relationships are given recommendations and conclusions on the promotion of entrepreneurship in agricultural production of the Republic of Serbia. This is especially important because on the basis of this study, the authors espouse the thesis that entrepreneurial orientation improves the competitiveness of agricultural production.

Entrepreneurship and innovation importance for economic development

When it comes to entrepreneurship, there is no unique definition accepted in the scientific literature. Entrepreneurship is most often considered as the activities focused on making profit in the market, based on the constant changes and readiness to take risks. According to Bobera (2010) entrepreneurs are known as pragmatic, flexible and adaptable people trying to harmonise their business with the changeable environment. The entrepreneur is trying to satisfy the identified needs of the market on one hand, using the resources available on the other hand, with the aim of adapting to the environment changes. Entrepreneurship is the central factor of the economic growth because it introduces new products and services into the market, opens new destinations for technology and innovation commercialisation, but before all else, it creates new values in the economy. Entrepreneurs see uncertainty as a challenge, a chance for success and a condition taking them towards better plans and more complex business ventures (Grozđanić et al., 2015).

Scott and Venkataraman (2000) see entrepreneurship as a space within which an individual uses his research efforts for chance and possibility identification, with the aim of creating a new product or service according to the demands and needs of the consumers. Such a product can be profitably exploited with a wide range of effects it contributes to. Entrepreneurship can be defined as a process of creating value through gathering the resources available with the aim of exploiting the profitable chances (Stevenson et al., 1989). Some authors consider entrepreneurship as a unity of three elements: innovation, taking risks and proactivity (Covin and Slevin, 1989; Zahra, 1993). Kirzner (1997) points out the role of the entrepreneur as a finder of the favourable market conditions stating that in every real life economy every participant is always an entrepreneur. Autio and Acs (2007) include variables at the level of national economies recognised as the key ones for entrepreneurial venture growth, and they are national tax policy and intellectual property protection.

According to Shumpeter (1961) entrepreneurship is the ability which assumes initiative, authority, prediction and leadership completely independent from capital ownership. The innovative efforts of entrepreneurs are the main catalyst of the economic growth, despite the fact that in the process, they destroy the value of the existing companies which had a certain level of monopoly. Shumpeter put an entrepreneur at the heart of capitalism, as a

moving force in the market, competitive, innovative, dynamic economy that creates wealth. He thought that financial and banking sector should serve the entrepreneurial economy, not dominate it.

Drucker (1991), in his famous book “Innovations and entrepreneurship“, described a tectonic change whose formation he had noticed even at an early stage – the transfer from the society of employed people into entrepreneurial society. This change is started by the forces that cannot be stopped, such as demographic changes, globalisation, as well as advance in information and communication technologies, with the constantly accelerating intensity. Drucker pointed out four specific entrepreneurial strategies:

1. To be the first, and the best at the same time,
2. To hit where they do not expect,
3. To find and acquire specialised „ecological niches“ and
4. To change economic characteristics of products, market or branch.

Dynamic development of entrepreneurship is a generator of the economic growth and competitiveness. Entrepreneurship develops in the most dynamic way in the developed market economies that recognised its developing potential with all the positive effects for the development of the country. A completed system of institutional infrastructure and incentive measures influences total affirmation of entrepreneurship, and growing focus of the state policies towards discovery and application of specialised incentive measures meant for fast growing, dynamic enterprises (Jakopin, 2015).

Dynamic enterprises use their resources most efficiently in market environment, continually increasing employment, react to market signals fast and make their business decisions quickly. According to Birch (1987), less than 5% of companies create at least 85% of the economic growth, income and new workplaces. According to Roure (1999), company growth develops under the influence of the following factors: 1) external and internal environment of the company, 2) entrepreneur himself and his entrepreneurial team, 3) innovation and change conduct, 4) growth and strategic approach, 5) business model and management system, 6) human resources and 7) finance growth. Because of the above mentioned, it is very important to determine the level of development of the entrepreneurial sector in Serbia in comparison to the environment, to point out the basic problems in creating encouraging entrepreneurial environment and directions of work for the economic policy creators with the aim of creating sustainable economic development.

In a large number of European research papers there is a proof of the connection between the success of the European ”gazelle“ and the economic growth through the research of the set of incentive measures: financial, fiscal, legal and other benefits in starting a business, attitude towards entrepreneurship, business failure tolerance, readiness to take risks, general entrepreneurial atmosphere, encouraging legal conditions in the function of company growth.

Positive experiences of the developed countries show that entrepreneurship is an important factor of the complete economic development, and agribusiness as well (Pejanović, Njegovan, 2010). After the 1970s, there is a trend of entrepreneurship growth and the beginning of its development – abandoning the concept of using the former economy as the main catalyst force in the economic development. With the beginning of the age of growing uncertainty at the global level, a lot of countries entering the processes of social and economic transition, reducing business activities and restructuring of large companies all led to the recognition of entrepreneurship as the catalyst of development.

Rural entrepreneurship, as Cvijanović et al (2011) calls it, stimulates the development of the rural areas. This type of entrepreneurship offers a chance for employment increase in rural population who generally get workplaces with more difficulties. Rural entrepreneurship can be valorised in the following fields of work: fruit and vegetable processing, animal husbandry and dairy production, olericulture, pomology, fungi growth and processing, forest fruit gathering, etc. Besides, it is possible to indirectly encourage the business connected to agritourism. The new approach that has been developed in the last decade is linked to the “bottom-up” rural development. This approach is based on the importance of the development of a community aided by local entrepreneurial initiatives and a clearly set goal to ensure a balanced technological development of rural regions (Radović-Marković, 2010).

Entrepreneurship has a special importance in modern development concepts, and the concept of rural development is one of those. In this concept, which is partially territorial, the other part is developing, and the third one sustainable concept, the role of the development based on people’s knowledge and skills is especially emphasized at the beginning of the twenty-first century. Such approach gives a whole new dimension to entrepreneurship, with regards to flexibility and adaptation ability, as well as a chance to develop and gain dynamics on the completely new basis. Considering it from the etymological point of view, entrepreneurship is the ability to start certain actions, undertake activities with the aim of achieving the desired aim, taking into account readiness to fight against obstacles, uncertainty and risk (Njegovan, Pejanović, 2009). Population, employment, the battle against poverty and environmental protection with the condition of productivity and business efficiency increase are all at the centre of this concept.

Productions entrepreneurship can be the key carrier of the desired changes in our society, such as: work productivity growth, production and service quality increase, competition strengthening, better usage of the capacities available, export growth, higher employment, public and foreign debt decrease. Only entrepreneurship can bring so much desired dynamics into our economic life, regain self-esteem of our citizens, stop the migration abroad, increase population life quality and set new standards of social stratification based on knowledge and productivity (Pokrajac et al., 2011). The function of entrepreneurship unites the abilities of prediction (especially technology and market changes), acceptance of investment risks (turning personal or other capital into realistic factors of production), innovation and learning because of adaptation.

The development of modern agriculture demands knowledge and innovation in the following areas (Asenso-Okyere, Davis, 2009):

- technology (climate changes demand new research in order to develop the varieties resistant to drought or flood, and shorten the cycle from sowing to harvest);
- institutions (the system of rules constituting the environment where innovations begin, then the legislative, tradition, norms, beliefs);
- policies (adequate, relevant and timely public interventions necessary for knowledge and innovation creation, spreading and application promotion and improvement);
- organisations (public and private groups and companies that have to innovate in order to become more efficient and effective in services they offer).

Intensive inclusion of Serbia in international integration processes additionally imposes the need for the companies and other subjects in the agricultural economy to create and perform the transfer of knowledge with the aim to build, keep and strengthen the competitive advantage. Knowledge as a source of innovation and successful adaptation to change in demands by increasingly demanding consumers represents the key determinant in successful facing the competition, preserving the existing and acquiring new markets (Vasiljević, Savić, 2014).

In the conditions of trade liberalisation domestic producers will succeed in taking the competition challenges successfully only if they have adequate knowledge to fight domestic and foreign competition, which certainly awaits them due to duty and other foreign trade protection measures abolishment. On the other hand, without necessary knowledge, there is no penetration of the domestic companies into the picky foreign markets.

The results of numerous research show that Serbian agriculture competitiveness is based on the fact that the production factors are relatively cheap compared to the other countries (soil, workforce, other inputs), and it causes price competitiveness for the agricultural and food products. However, the current situation with the factor prices is more a result of insufficiently developed and inefficient domestic market, as well as inadequate economic environment. In other words, permanent sources of the competitive advantage must be found in other areas, knowledge and innovation first of all. Knowledge is the key factor of competition in the modern global economy, so that knowledge adoption and the application can successfully replace the limitations of certain resources and enable to achieve much more with less input.

The company success depends on the level of knowledge available, ways of applying that knowledge and speed of new knowledge acquisition. Traditional factors of production in agriculture (soil, workforce, capital) have secondary importance. The aim of knowledge management is to transfer information and intellectual property into sustainable value. The efficient system of knowledge management in agriculture provides outputs in forms of technology, software, trained professionals, information and other elements necessary

for continuous development in agriculture. All participants are the source and users of knowledge and information at the same time. Agricultural producers cannot rely on their experience and technical knowledge alone because the knowledge from other areas has growing importance to their successful businesses (Engel, 1990).

The function of knowledge and innovation systems include the following (Standing Committee on Agricultural Research, 2012): 1) knowledge development and diffusion; 2) research and chance identification; 3) entrepreneurial experiments, risk and uncertainty management; 4) market formation; 5) resource mobilisation; 6) legitimacy acquisition and 7) positive externalities development.

The process of entrepreneurship development in Serbia has accelerated in the recent years, but the structure of the activity is not in accord with the situation in the developed countries. Due to the uncontrolled company foundation, without systematic orientation towards specific activities, entrepreneurs opt for less capital-intensive activities, trade above all else, much less for production.

However, although there is a widely proclaimed support for entrepreneurship, Serbia is not so successful in new business and new workplace creation compared to the other countries in transition. Entrepreneurship is still, as well as at the beginning of the transitional period, facing a large number of problems such as (Unija poslodavaca Srbije, 2012):

- lack of favourable financing sources for SMEs sector development;
- high expenses (fiscal and parafiscal) which reduce goods and services competitiveness in foreign markets;
- complicated administrative procedures and corruption, as an obstacle in the development of various sectors (construction, trade, etc.);
- lack of good quality managers, as a result of the gap between the education system and the needs of the business market;
- low purchasing power of the population;
- insufficient support for production development on behalf of the state;
- high level of economy in GDP.

From the data in Table 1 we can see that in terms of global index of entrepreneurship development Serbia takes a much lower position than some of the countries in the environment (Slovenia, Hungary, Romania, Bulgaria, Croatia), but before Albania and Bosnia and Herzegovina. This result points to unfavourable entrepreneurial climate, slow recovery of the economy and insufficient social support for entrepreneurial activities. The sub index of the entrepreneurial activities is especially low – ABT – which points to the dominance of entrepreneurs who had started new business in order to provide existence, not because they spotted a business opportunity. Also, it is the proof of the low level of education of the new entrepreneurs and engaged workforce training, with the low level of competition in the market.

Table 1. Global index of entrepreneurship in the countries in the environment

GEI rank	State	Entrepreneurial attitude (ATT)	Entrepreneurs activities (ABT)	Entrepreneurial intentions (ASP)
31	Slovenia	47.6	49.8	53.9
41	Hungary	43.4	45.3	46.7
42	Romania	38.2	40.8	55.9
46	Bulgaria	41.8	34.7	48.5
51	Croatia	35.9	35.3	48.4
74	Serbia	39.0	23.3	30.4
76	Albania	30.7	31.5	27.8
82	Bosnia and Herzegovina	27.8	28.6	29.5

The source: GEI 2016

The place and role of agriculture in the economic development of Serbia

Although many strategic documents point to the great importance of agriculture and rural areas, the state and local governments have still not created social and economic environment incentive enough for agriculture and rural development, especially in certain regions and areas of the Republic of Serbia (Ristić, 2013). We cannot be satisfied with the achieved level of agricultural sector development, possibilities for integral long-term development of agriculture and rural areas, their contribution to the local economy and society development. The possibilities for wider local community influence on agriculture development are not used, or for the creation of a more favourable social and economic environment for agriculture and rural development in the future.

Primary agricultural production cannot develop separately in modern conditions, without functional connections to other sectors, but it should be directed integrally, within the concept of local economy rural development and wider than that. Also, the integral rural development includes a group of mutually connected economic sectors and other activities in the rural areas. Apart from the primary agriculture, it includes manufacturing industry, water power engineering, fishing industry, forestry, trade, tourism, education, health, environment protection, input industry, etc. It is beyond doubt that the development of agricultural sector in rural areas can significantly contribute to local economy competitiveness increase and local population life quality improvement.

Serbia has a number of advantages for agriculture development, such as: favourable climate conditions, natural resources, fertile arable land, tradition in agriculture and the villages, land configuration suitable for various types of agricultural production, etc. On the other hand, there are many weaknesses, to start with unfavourable age structure, out dated mechanisation, non-regulated agricultural products market and unsafe placement, insufficient irrigation, undeveloped rural infrastructure, price disparity, etc. SMEs and entrepreneurship in agriculture development can largely reduce the above mentioned weaknesses and turn them into the

development chances of our country. This is true, especially with the trends of growing demand for (organic) agriculture products, rural tourism development, European integrations as well as the announcement of a greater support of the state for this sector development.

During the period of transition in the Republic of Serbia there was no significant change in the economic structure. Since the beginning of the twenty-first century the contribution of agriculture to GDP has decreased, primarily as a result of the faster increase of the activities in non-production sectors. The share of the agricultural sector is still much higher than the EU average, which can be contributed to the rich natural resources and favourable climate conditions for agricultural production, and also to the halt in the reforms of the rest of the economy (Table 2).

Table 2. The contribution of agriculture to gross value added of the Republic of Serbia for the period 2010-2015*

	2010	2011	2012	2013	2014	2015
Total GVA (current prices, millions of dinars)	2,557,364	2,869,319	3,004,571	3,263,518	3,257,177	3,346,183
GVA of agriculture, forestry and fishing industry (millions of dinars)	261,510	306,607	269,999	305,519	302,226	273,858
GVA agriculture's share (%)	10.2	10.7	9.0	9.4	9.3	8.2
Employment in agriculture, forestry and fishing industry (in 000 of people)	533,0	478,1	467,1	492,0	508,1	499,6

*no data for Kosovo and Metohija autonomous region

The source: Statistical Office of the Republic of Serbia

According to the data in Table 2, we can see that the share of the employed in agriculture was about 500 000 people, which is a significant number compared to the high rate of unemployment during the whole period of transition. The share in foreign trade exchange was around cca 23% in export (Table 3), although during the period observed the import of this sector also increased and it was around 8% of the total import, the whole 11.9% in 2015. On the export side there are great opportunities of export structure improvement in terms of final processing products higher share with higher added value in comparison to other primary products. The characteristics of import is that suspicious quality and lower price products are often imported, although there is a surplus of production in the domestic market (meat, milk, certain olericulture products, etc.).

Table 3. Foreign trade goods exchange of agricultural and food products in the period from 2010 to 2015

	2010	2011	2012	2013	2014	2015
Agricultural export (millions of euros)	1,688	1,937	2,106	2,104	2,315	2,819
The share of agriculture in the total export (%)	22.8	22.9	24.9	19.1	20.8	23.4
The import of agricultural and food products (millions of euros)	903	1,010	1,163	1,227	1,310	1,950
The share in the total import (%)	7.3	7.1	8.2	7.9	8.5	11.9
Trade balance of agricultural and food products (millions of euros)	785	927	943	877	1,005	869
Import coverage with export (%)	186.9	191.8	181.1	171.5	176.6	144.5

The source: Statistical Office of the Republic of Serbia, 2016

According to the data in the Strategy for agriculture and rural development of the Republic of Serbia from 2014 to 2024 issued by the government of Serbia, total area of agricultural land is 5.06 million of hectare., where 71% is used in an intensive way (as arable land, orchards and vineyards), and 29% are natural meadows. According to evaluations, as much as 200 to 350 thousand of arable land and meadows are not farmed every year, while the number is much higher when it comes to fields. When we consider the scope and structure of the agricultural areas available, Serbia stands among the European countries with favourable land resources because it has 0.7 ha agricultural land available per person, that is, 0.46 arable land.

According to the population census data in 2012, there is a decrease in rural population in comparison to 2002 for 10.9%, and even 18.7% in the region of Southern and eastern Serbia. Unfavourable demographic trends are caused by a number of factors, such as: undeveloped infrastructure, lack of good-quality social life in rural areas, inability of population to get proper education, low level of health services, dominant primary agricultural production, inability for the placement of agricultural products, etc. The result of these population migrations is extremely unfavourable age structure, where one in five residents in the rural areas is over 65, and one in four in Southern and Eastern Serbia.

According to the agricultural census in 2012 (Republički zavod za statistiku (2013), there are 631552 agricultural homesteads in Serbia without Kosovo and Metohija, and among those there are 628552 (99.5%) family homesteads, while physical entity and entrepreneurs' economies only 3000(0.5%), and only 479 entrepreneurs. From the total number of homesteads cca 54% belongs to mixed economies that deal with both crop and livestock production. This structure dominates in Belgrade, Sumadija and Western Serbia regions, as

well as Southern and Eastern Serbia, while the specialised economies are the characteristics of Vojvodina region with the largest share of tillage. Certainly, the large share of mixed homesteads influences their lower profitability because their orientation to both livestock and crop production influences poorer results in both segments.

Development of agriculture in rural areas can prevent and change the unfavourable demographic picture in these areas. The data in Table 4 show that only 34% of the total population are employed people, and that there is the same percent of supported people, with 24% of retired people. Population growth in 2013 was recorded in only 7 towns and 3 municipalities, while 107 municipalities recorded more than 10% decrease. The most threatened are the areas in Eastern and Southern Serbia, which are among the poorest regions in Europe.

Table 4. Demographic and economic disbalance in Serbia in 2014

Total population	employed	unemployed	retired	supported
7,131,787 (100%)*	34 %	8%	24 %	34 %

*The evaluation of the Statistical Office of the Republic of Serbia

The source: Ministarstvo poljoprivrede (2015) Izveštaj o ekonomskom razvoju Srbije u 2014. godini

Irrigation has been one of the biggest problems in agriculture in Serbia for a number of years. Beside abundant water – rivers, lakes, as well as large systems built, such as Dunav-Tisa-Dunav canal, very little land is irrigated and it causes lower yield but also other segments connected to agriculture. According to the 2012 census, 99 773 ha are irrigated, which is only 2.9% of the total agricultural land. This fact speaks for itself about huge opportunities for yield increase and total sector efficiency through the increase of the irrigated areas.

Demographic migrations influence the decrease in the share of the most educated people within the rural population in all regions. Such a situation has an unfavourable influence on the total capacity and competitiveness of the workforce from the rural areas. Workforce low quality can be considered as one of the factors which make the economic development of rural areas more difficult, since it is the reason for low entrepreneurial potential among the rural population, as well as less economic interest of foreign investors. This type of environment incites further migrations of highly educated population because it is difficult to keep educated workforce in the areas without workplaces suitable to their education and ambitions.

Many developed countries in Europe are examples that successful agricultural development can be the carrier of the complete development. Disregarding the economic theory which explains that higher export share of agricultural and food products in the total export of a country points to its lower level of economic development as a rule, it is a very important item in the foreign trade balance of many countries in the world (Holland, Denmark, France, Canada, Australia). Agriculture can be the carrier of the economic development, it can enlarge gross domestic product and be the framework of

the economic stability. Agriculture should not be a sign of poverty, but the wealth of the country because natural, human and processing capacities can be maximally valorised through agriculture.

Entrepreneurship orientation in the function of agricultural production competitiveness

The level of agricultural development achieved in Serbia is the result of the inherited conditions from the postwar period and the agricultural policy conducted in the transitional period. The development of agriculture was based mainly on public sector, through agricultural cooperatives and large agricultural and industrial holdings. The agriculture was neglected during the whole postwar period in comparison to industry and other areas of the economy, especially through price disparities damaging to agriculture, and kept even nowadays. Slower agriculture growth is the result of inconsistency in the development concept formulation and application, and neglect from the private sector in the economic policy. Regardless of that situation, we should especially underline the importance of agriculture in the foreign trade balance of Serbia and in the total employment, considering the problems of the country's debts as well as high rate of unemployment (Aničić et al., 2016).

There are great opportunities for entrepreneurship and SMEs in agribusiness development within agriculture. The economic policy of the country should provide a favourable macroeconomic frame for dynamic entrepreneurship development in agriculture. The future entrepreneurs should bear in mind that food production is profitable and has a fine perspective. For sustainable development of entrepreneurs and SMEs it is necessary to create a chain leading from the producer (the one farming the land), through institution and industry, to international market, that is, cluster development around national agricultural products programmes with a lot of knowledge (Devetaković et al., 2009). A good way to do this is to connect research and development sectors of industry, "wrap it up" in an innovation package from idea to market realisation for competition increase of their own products.

Serbia is in the EU accession process, so there is an imposed imperative of getting closer to the European model of doing business, which has a characteristic of especially complex relations in agricultural plans. Because of the extreme importance of economic stability and sustainable development, the adjustment of domestic policies and legislation to the Common agricultural policy (CAP) of the EU is of essential importance, considering that it can potentially provide a number of advantages for the agricultural sector in Serbia. The main goal of this common agricultural policy of the EU countries is the support of the farmers' income, in order to provide a certain level of the annual income, but also to encourage these farmers to improve the quality of their production and invest into new development trends. There are four priorities of the CAP: provision of product quality and safety, environment and animal protection, EU farmers competitiveness increase, rural community preservation and strengthening of their inner dynamics and self-sustainability.

It is beyond doubt that the above mentioned CAP priorities represent the basis of the agricultural policy of Serbia in the future. Thus, in the Strategy of agriculture and rural development from 2014-2024 the Government of Serbia envisaged a number of measures and instruments which should contribute to more efficient agricultural sector development and rural population standard increase. The strategy envisages long-term, stable and efficient policy, ready to react timely to the environmental challenges. The new concept of agricultural policy should react, especially to outside challenges such as:

1. The need to reduce the lag in technological development after the competition countries and enable more efficient facing of the agricultural sector with the climate change effects;
2. The necessity to increase food chain efficiency and agricultural and food sector competitiveness;
3. The provision of the stable income and business environment for farmers and other entrepreneurs;
4. The achievement of economic, ecological and social goals of sustainable development, where multifunctional agriculture and rural development have a special place.

The new concept of agricultural policy will be realised much easier if market and entrepreneurial behaviour principles are accepted in the agricultural sector as well, by both SMEs in this sector and agricultural economies. This is surely going to be a long-term process because our society, its structure and orientation are still unfavourable for entrepreneurship development. There are still ideas from the time of socialist self-management, the psychology of „sticking to the public job“, contrary to entrepreneurial culture development. Such ideas will neither be rooted out easily nor quickly, and they will act as a limiting factor when it comes to entrepreneurship development. The question is how much people who are used for government and administrative body support will be able to change the orientation to productive ventures turned towards technology and production increase. Also, the fact that most of the young prefer a public sector job to the start of their own is a defeat.

Entrepreneurship development in Serbia in general as well as in agriculture is far below the opportunities and needs of the total development at the moment. The biggest part of their economic initiative and entrepreneurial energy business people directed far more towards overcoming administrative obstacles and building good relations with the state than new technology development, new market acquisition and work productivity increase. Small enterprises in agriculture are a great chance for our policy of relying upon their own strength. It is the way of working with small amounts of capital, with a high work productivity, good quality product, service and profit acquisition. This is the way of connecting economic, social, spatial, technological and other factors of work and achieving development goals through strictly specialised and complementary small enterprise entrepreneurship development.

Sustainable business in agriculture must be subjected to the analysis of pay ability or justification whether it is a development of a new product, the improvement of the existing

one, business scope widening or narrowing, start of a new business or marketing strategy change. In the justification analysis of an entrepreneurial idea it is necessary to define: in the first group of goals – what is the business expected to achieve in a certain time period, and in the second group – the minimum of acceptable criteria which must exist in order to realise the project. Therefore, entrepreneurship is a business that understands production for the market, not only for yourself and your family. It means a shift from the concept of how to feed to the market concept, that is, the business of opportunities in agriculture.

The transfer to an entrepreneurial way of thinking and doing business implies removing a number of limitations, especially present in family economies in the area of agriculture. Farmers are faced with a sharp market competition taking on a global character. On the other hand, agriculture is a specific activity which shows a characteristic of a time gap between investment and repayment. That is why the need for market procurement and market sale analysis is imposed. The inputs for agricultural production are mainly paid for at procurement, while the situation is quite different on the side of sale. The mediators have the dominant position here – domestic trade chains, as large buyers of products, and exporters, warehouse and cold storage owners as the ones with no production.

The specific features in Serbia are also very often missed chances of obtaining money under favourable conditions from the international monetary institutions due to non-existent projects or delays in their creation. A classic example is the credit awarded to Serbia by the World Bank to build irrigation systems, although only one percent of arable land is irrigated in Serbia. Also, the agricultural land in public property should be sold to the local farmers as soon as possible (to be paid in money or agricultural products for export). It would have multiple positive effects: the land would be used in a more efficient way, the young would stay in the villages, the pressure of cheap workforce in big cities would be lower, etc.

In the family economies, apart from the unfavourable age structure, there are numerous subjective weaknesses present, such as no wish for education and asking specialists for help, keeping the traditional production methods, etc. There is a very poor geographical origin protection, undeveloped cooperatives or other systems of cooperation. Export is often impossible because there is no stable offer in terms of quantities and qualities. There is also a big problem of undefined jurisdiction of local and republic institutions, which is often intertwined with the damage for producers. All these things result in poor political influence of farmers on the economic policy carriers and inadequate treatment of the agricultural sector.

Because of these facts, it is necessary to introduce entrepreneurship into the school system, which will recruit a larger number of successful entrepreneurs and make it easier for them to manage the development of their own business. Entrepreneurial education has short-term and long-term effects for the society (Arasti et al., 2011), and high education significantly increases the odds to enter entrepreneurship for business chances and ideas, rather than economic need (Grbović et al., 2013). According to the study of employment of the young and migrations in Serbia (Vladislavljević et al., 2010), entrepreneurship is more often considered as a result of the push effect, that is, the need to survive, and less as a result of the pull effect or the recognition of business

opportunities and chances in the market.

The basis of the economically successful agricultural production is the equipment and machines, and their full usage. High prices of agricultural machines and equipment, with the fall of agricultural product prices, demand intensive usage on behalf of the farmers in order to use them in their full capacity. Otherwise, high fixed expenses have a negative influence on profit and cause losses. Temporary position of most of the agricultural economies does not enable fast redirection to market production exclusively. The basic problem and limitation factor in the agricultural mechanisation application are high costs of machinery and equipment procurement, and too low level of usage in small production areas.

A possible solution to the above mentioned problem is a joint procurement of the expensive equipment by several homesteads or usage of other parties' services. Thus, for example, Pihtrager and Wagner (2002) point out that association of agricultural economies can achieve more rational usage of agricultural machinery and equipment, and become more competitive in the market. Machine rings represent a self-organised form of cooperation among neighbours which cover a larger territory and has clear principles for work payment according to the well-known prices agreed in advance. Their organisation started in Germany 40 years ago, and later they spread across most of the countries in West, Central and North Europe.

The development of SMEs in agribusiness should be based, apart from their own sources, on the investment of significant funds through various forms of credit. Farmers and agricultural SMEs have the least access to the funds in comparison to all other sectors in Serbia, which offers a narrow scope of credits to the sector of agriculture. The existing mechanisms for agriculture financing are inadequate and the changes should be made in the approach itself. It can be provided through the institutional support and share capital from the banks, credit associations and leasing companies (Bogavac-Cvetković et al., 2010). High interest rates, credit costs, mortgage obligations and other types of credit insurance often represent obstacles which they cannot overcome, especially family homesteads.

In order to achieve the goal of further successful agriculture development, an active policy of price parity establishing is necessary, incentive mechanisms of tax, credit and other policies with the simultaneous change of the social status, work and life conditions for the farmers, that is, their alignment with non-agricultural and urban population. The strategy of agriculture development must be a part of the united development strategy of the complete economy and society. This is the only way to create the basis for the application of the long-term economic policy in accordance with other development policies, and to create the basis for their harmonised action.

Conclusion

In the modern conditions of doing business the success of the company in all the sectors of the economy depends on the level of knowledge available, the ways of the knowledge application and the speed of new knowledge acquisition. The traditional factors of production in agriculture (soil, workforce, capital) often have secondary importance. The efficient

system of knowledge management in agriculture provides the outputs in terms of technology, software, trained professionals, information and other elements necessary for the continuous development of agriculture. All the participants in this process are at the same time both the source and the users of the knowledge and information. Agriculture should not represent a symbol of poverty, but the wealth of the country, because natural, human and processing resources of the economy can be maximally valorised through agriculture.

Entrepreneurship development in Serbia in general, as well as in agriculture, is far below the opportunities and needs of the complete development at the moment. There is not enough awareness about the development of agriculture, especially in rural areas, which can significantly contribute to local economy competition increase and life quality improvement for the population. In Serbia, entrepreneurs who started a new business to provide existence, not because of the spotted business opportunity, are dominant. Therefore, it is necessary to introduce entrepreneurship into the school system which will recruit a larger number of successful entrepreneurs and enable their management in developing their own business.

The new concept of agricultural policy will be realised more easily if the principles of market and entrepreneurial behaviour are accepted in the area of agriculture as well, by both SMEs in the sector and agricultural economies. This process will surely be a long-term one because our society, its structure and orientation are still unfavourable for entrepreneurship development. There are still some ideas from the period of self-management socialism, the psychology of "remaining in the public job" as opposite to entrepreneurial culture development. The strategy of agriculture development should be based on the long-term, stable and efficient policy, prepared to react to the challenges in the environment with a good timing and be a part of the united strategy of development of the complete economy and society.

Literature

1. Aničić, J., Vukotić, S. and Krstić, S. (2016): *The results achieved and the strategic aspects of agriculture development in Serbia in the period of transition*. Ekonomika poljoprivrede, Vol. 63, No. 1, pp. 175-189.
2. Arasti, Z., Kiani Falavarjani, M. and Imanipour, N. (2011): *Teaching methods in entrepreneurship education: the case of business students in Iran*. Proceedings of the 6th European Conference on Innovation and Entrepreneurship, Aberdeen Scotland, UK, 15-16 September 2011, Edited by H. Fulford, Vol. 1, pp. 92-98.
3. Asenso-Okyere, K. and Davis, K. (2009): *Knowledge and innovation for agricultural development*. IFPRI Policy Brief 11.
4. Autio, E. and Acs, Z. (2007): *Individual and country level determinants of growth aspiration in new ventures*. Babson Conference on Entrepreneurship Research, Madrid, 6-9 June 2007.
5. Birch, D. (1987): *Job Creation in America: How our smallest companies put the most people to work*. Free Press Macmillan, New York.
6. Bobera, D. (2010): *Preduzetništvo*. Ekonomski fakultet u Subotici, Subotica.

7. Bogavac-Cvetković, N., Ilić, B. and Milićević, V. (2010): *Globalisation and competitiveness of the agricultural sector of Serbia*. *Ekonomске teme*, Vol. 48, No. 1, pp 159-167.
8. Covin, J., G. and Slevin, D., P. (1989): *The strategic management of small firms in hostile and benign environments*. *Strategic Management Journal*, Vol. 10, No. 1, pp.75-87.
9. Cvijanović, J., Vojnović, B. and Lazić, J. (2011): *The research of women's interest in entrepreneurship in agribusiness*. *Ekonomika poljoprivrede*, Vol. 58, No. 1, pp. 67-79.
10. Devetaković, S., Gavrilović, Jovanović, B. and Rikalović, G. (2009): *Nacionalna ekonomija*. Ekonomski fakultet, Beograd.
11. Drucker, P. (1991): *Inovacije i preduzetništvo, praksa i principi*. Privredni pregled, Beograd.
12. Engel, P. (1990): *Knowledge management in Agriculture: Building Upon Diversity*. *The International Journal of Knowledge transfer*, Vol. 3, No. 3, pp. 28-35.
13. Global Entrepreneurship Index – GEI, (2016): *Global Entrepreneurship Development Institute*.
14. Grbović, D., Zakić, N. and Vukotić, S. (2013): *Women education in the function of female entrepreneurship development in Serbia*. 4th Women and Business Conference, 20. June, Varna, Bulgaria, CD Rom, pp. 1-11.
15. Grozdanić, R., Radojičić, M. and Vesić, J. (2015): *Preduzetnička orijentacija*. Tehnički fakultet, Čačak.
16. Jakopin, E. (2015): *Dinamičko preduzetništvo – konkurentnost – privredni rast*, u: *Institucionalne promene kao determinanta privrednog razvoja Srbije*, redaktor V. Leković, Ekonomski fakultet Univerziteta u Kragujevcu, Kragujevac, pp. 3-22.
17. Kirzner, L. (1997): *Entrepreneurial discovery and the competitive market process: An Austrian approach*. *Journal of Economic Literature*, Vol. 35, pp. 60-85.
18. Ministarstvo privrede Srbije (2015): *Izveštaj o privrednom razvoju Srbije u 2014. godini*. Beograd.
19. Njegovan Z. and Pejanović, R. (2009): *Ruralna regionalizacija AP Vojvodine: Novi teorijsko metodološki pristupi upravljanju ruralnim razvojem*. monografija, Univerzitet u Novom Sadu, Poljoprivredni fakultet, Departman za ekonomiku poljoprivrede i sociologiju sela, Novi Sad.
20. Pejanović, R. and Njegovan, Z. (2010): *Preduzetništvo kao razvojni resurs (agro) privrede Republike Srbije*. *Agroekonomika*, No. 45-46, pp. 5-24.
21. Pokrajac, S., Dondur, N., Grbić, S. and Savanović, M. (2011): *Proizvodno preduzetništvo kao mogući izlaz iz ekonomske krize*. *Ekonomski vidici*, Vol. 16, No. 4, pp. 719-733.
22. Prihrtrager, S. and Wagner, W. (2002): *Erfolgreiche Kooperationen*, Frankfurt: DLG-Verlag.

23. Radović-Marković, M. (2010): *Rural entrepreneurship and sustainable economic development in Serbia*. Ekonomika poljoprivrede, Vol. 57, SI – 2, pp. 583-588.
24. Republički zavod za statistiku (2013): *Popis poljoprivrede u 2012. Poljoprivreda u Republici Srbiji*. Beograd.
25. Ristić, L. (2013): *Strategic management of the rural development in the Republic of Serbia*. Ekonomski horizonti, vol. 15, no. 3, pp. 229-243.
26. Roure, J. (1999): *Europe's Most Dynamic Entrepreneurs: The 1988 Job creators*. Brussels: Europe's 500, 10, 53.
27. Schumpeter, J. (1961): *Theory of Economic Development*. Oxford University Press, New York.
28. Scott, S. and Venkataraman, S. (2000): *The Promise of Entrepreneurship as a Field of Research*. The Academy of Management Review, Vol. 25, No. 1, pp. 217-226.
29. Standing Committee on Agricultural Research (2012): *Agricultural Knowledge and Innovation Systems in Transition – a reflection paper*. European Commission.
30. Stevenson, H., H., Roberts, M., J. and Grousbeck, H., I. (1989): *Business Ventures and the Entrepreneur*. Irwin: Homewood.
31. Unija poslodavaca Srbije (2013): *Stavovi poslodavaca o poslovnom okruženju*. Beograd.
32. Vasiljević, Z. and Savić, B. (2014): *Znanje i intelektualni kapital – izvori konkurentne prednosti srpske poljoprivrede*. Ekonomski vidici, Vol. 19, No. 1, pp. 11-24.
33. Vlada Republike Srbije (2014): *Strategija poljoprivrede i ruralnog razvoja Republike Srbije za period 2014-2024. godine*. Službeni glasnik RS, broj 85/14 od 12. avgusta 2014.
34. Vladislavljević, A., Krsmanović, B., Stojanović, M. and Azanjac, T. (eds.) (2010): *Izveštaj o zapošljavanju i migracijama mladih u Srbiji 2010*. Građanske inicijative, Beograd.
35. Zahra, S., A. (1993): *Environment, corporate, entrepreneurship, and financial performance: a taxonomic approach*. Journal of Business Venturing, Vol. 8, No. 4, pp. 319-340.

MOGUĆNOSTI I OGRANIČENJA RAZVOJA PREDUZETNIŠTVA U POLJOPRIVREDI SRBIJE

Jugoslav Aničić⁴, Svetlana Vukotić⁵, Goran Maksimović⁶

Rezime

Republika Srbija je veoma pogodna za poljoprivrednu proizvodnju: velike i kvalitetne obradive površine, povoljni klimatski uslovi za sve poljoprivredne kulture, bogatstvo biljnog i životinjskog sveta, bogata tradicija i razvijene naučne institucije su neprocenjivo blago srpskog agrara. Međutim, rezultati brojnih istraživanja pokazuju da se konkurentnost srpske poljoprivrede zasniva na jeftinim faktorima proizvodnje u odnosu na druge države (zemljište, radna snaga, drugi inputi). Jedan od načina prevazilaženja takve situacije je što veća primena preduzetničkog načina proizvodnje u agrobiznisu za koji u Srbiji postoje velike mogućnosti. U radu se analizira trenutni položaj sektora poljoprivrede i ukazuje na značaj i potrebe što bržeg i šireg razvoja preduzetničke orijentacije u ovoj delatnosti. Srbija se nalazi u procesu pridruživanja EU, pa se kao imperativ nameće približavanje evropskom modelu privređivanja i potreba da preduzeća i porodična gazdinstva iz agrobiznisa izgrade i očuvaju svoje konkurentske prednosti. U tom cilju, moraju da prevaziđu tradicionalne slabosti, a edukacija i uvođenje preduzetništva u školski sistem su dobra osnova za jači uticaj poljoprivrednika na nosioce ekonomske politike i adekvatan tretman sektora poljoprivrede na makroekonomskom nivou.

Ključne reči: poljoprivreda, preduzetništvo, agrarna politika, konkurentnost

4 Vanredni profesor, dr Jugoslav Aničić, Univerzitet Union – Nikola Tesla, Ulica Cara Dušana br. 62-64; 11000 Beograd, Srbija, Telefon: +381 11 328 69 61, E-mail: ajugoslav@yahoo.com

5 Vanredni profesor, dr Svetlana Vukotić, Univerzitet Union – Nikola Tesla, Ulica Cara Dušana br. 62-64; 11000 Beograd, Srbija, Telefon: +381 63 801 61 86, E-mail: cecavukotic@gmail.com

6 Vanredni profesor, dr Goran Maksimović, Univerzitet u Prištini, Poljoprivredni fakultet, Kopaonička Ulica bb, 38219 Lešak, Srbija, Telefon: +381 64 150 52 73. E-mail: goran.maksimovic@pr.ac.rs

FOOD SAFETY AS ONE OF THE MAIN SAFETY PREOCCUPATIONS OF A MODERN MAN

Željko Bjelajac¹, Marijana Dukić – Mijatović², Joko Dragojlović³

Summary

Industrialization, agricultural production and use of hormones, additives, pesticides, and like have influenced the increase in customers' dissatisfaction, leading to loss of their confidence in institutions responsible for food safety control. It resulted in changes and adoption of more stringent legal regulations that followed the concept "from farm to fork" at the level of the European Union and the Republic of Serbia. It puts the emphasis on consumers and their right to have important facts for the proper selection of products (food) at their disposal. Consequently, the international standards which ensure the quality and safety of food are being developed. Therefore, the aim of this paper is to analyze food safety from the aspect of modern man through the methodological and theoretical framework. Analysis method will explain terms related to the food safety, while the normative method will be used to see legislation regulating the studying matter of food safety and consumer protection in the European Union and the Republic of Serbia, and the obtained results will be compared and summarized through comparative method.

Keywords: *food safety, consumer protection, international standards, EU, harmonization, Republic of Serbia.*

JEL: *K32, F64, Q19.*

Introduction

Food safety in the narrow sense can be defined as the absence of risk in food, while in the broader sense it can include nutritional characteristics and information about the unknown

-
- 1 Željko Bjelajac Ph.D., Full professor, University of Business Academy, Law Faculty of Economics and Justice, Geri Karolja Street no. 1, 21000 Novi Sad, Republic of Serbia, Phone: +381 64 46 28 967, E-mail: zdjbjelajac@gmail.com
 - 2 Marijana Dukić-Mijatović Ph.D., Full professor, University of Business Academy, Law Faculty of Economics and Justice, and University Novi Sad, Faculty of economy in Subotica, Segedinski put no. 9-11 24000 Subotica, Republic of Serbia, Phone: +381 63 542 093, E-mail: marijana.dukic.mijatovic@gmail.com
 - 3 Joko Dragojlović Ph.D., Assistant professor, University of Business Academy, Law Faculty of Economics and Justice, Geri Karolja Street no. 1, 21000 Novi Sad, Republic of Serbia, Phone: +381 64 94 29 936, E-mail: jdragojlovic@pravni-fakultet.info

properties of food such as possible genetically modified food, and the like. According to the Codex Alimentarius, safe food is the food that will not harm consumer when consuming or preparing it in accordance with its intended purpose. The World Health Organization (WHO) puts an emphasis on responsibility in defining food safety. It defines the approach to food safety as a shared responsibility of the food industry, government, consumers, and science. Analogous to the above, it can be concluded that the concept of food safety system is very complex as it is about food which has to be a drug and not a poison to a modern man (Pejanović, 2015).

The importance of food safety and human nutrition have been emphasized through centuries. Thus, the significance of nutrition was suggested by Hippocrates (460-357 BC), considering that the one who does know anything about food cannot understand human diseases. As a confirmation to this, Colin Campbell in his work „The Power of Nutrition“, based on research on the effects of nutrition to human health stated that connectivity is established between various dietary factors and diseases, and in particular stressed the negative impact of protein of animal origin and the positive impact of vegetable protein on human health (Mijatović, Mirčevski, 2012).

The Romans took good care about food safety, and especially prominent personalities or those who feared that they could be poisoned by food. In fact, they had a special slave (lat. praegustator) who had to try the food before serving and to control the entire chain of food preparation, from raw material to serving (Sič, 2013).

Today, quality and safety of food also have an important role in maintaining the health of consumers. A growing concern of state authorities, but also consumers for food safety has contributed to the tightening of legal regulations and the introduction of standards which aim to improve the management of food safety (Baltić et al., 2013).

It is not allowed to place food that is health unsafe for consumers in the European Union; therefore, they pay much attention to this issue in the European Union. (Dukić Mijatović, Gongeta, 2015) Actually, most of the laws in force in the European Union countries were brought by the European Commission, and not the institutions of national legislation. The first group of legal acts is directives which establish goals but allow the national authorities to determine the extent to which these goals are realized, and they cannot be applied if the national legislation does not implement them. The second group of legal acts is regulations which are directly applicable and become applicable in the Member States of the European Union as soon as they come into force without the need to change national legislation. Therefore, within this paper, special attention will be paid to the legislations that regulate the field concerning food safety in the European Union and the Republic of Serbia.

Methodology

The objective of this work is to analyze food safety through the methodological and theoretical framework and from the aspect of a modern man. Analysis method will explain terms related to food safety. By using this method we should become familiar with basic concepts related to the field of food safety and thus highlight the importance of food safety as one of the

main preoccupations of a modern man. Normative methods will serve to show us legislations which regulate the examined matter of food safety and consumer protection in the European Union and the Republic of Serbia. By using this method, we will point out the most important legislation related to this area, as well as the most important legal regulations regarding food safety in Serbia and the European Union. Through a comparative method, we will point out the diversity of legitimate regulations applied in Serbia and European Union, and the results will be compared and analyzed, both positive and negative sides of different legal regulations.

Food Safety and Legislation

According to the World Health Organization, stated by Pejanović (2015), the frequency of food poisoning in industrialized countries in the past ten years has been between 10 and 15 percent per year, while the incidence of milk and dairy products poisoning is estimated at around five percent per year. In 11 European countries, the survey confirmed that out of 100,000 inhabitants 30,000 have problems (suffer) of gastrointestinal infections caused by biological contamination of food. The data obtained in the US show that around 76 million people get poisoned by food every year. Out of this number, an average of 325,000 gets hospitalized, while 5,000 of poisoned people die. These data are alarming for mankind (consumers), which results in the need to increase the consumer protection.

For food protection, and its hygienic safety and quality are responsible manufacturers, government agencies, and consumers. (Dukić Mijatović et al., 2016) In order to provide good quality and safe food at the global level, the World Health Organization and the Food and Agriculture Organization (FAO) of the United Nations created an international system of rules called Codex Alimentarius in 1962 and formed a commission responsible for the program related to standards in the area of food. In each country, national authorities had regulations pertaining to food, primarily with the aim of ensuring fair trade and to prevent consumer deception. Food safety was in the second place. However, these relationships have been changing since the Uruguay negotiations under the GATT (General Agreement on Trade). The results obtained by this agreement are known as Sanitary and Phytosanitary – SPS and they are related to measures to be taken in order to protect human health from hazards posed by chemical and biological contaminants. According to this agreement, each country can restrict imports of foods for health reasons, which are based on scientific facts and thus to protect their consumers (Ušćebrka, 2011). Also, harmonized international regulations enable the establishment of common standards for international trade of food, and thus creating trust and confidence in the food they find in the market, regardless of the origin of production (Pejanović, 2015).

International Standards

The need for the introduction of international standards occurred due to extreme growth of international food trade, in order to ensure food quality and safety, but also smooth and fair international trade in food products. Implementation of international standards for food safety can most effectively reduce the risk to consumers' health. The present study gives an overview of the most prevalent.

Global GAP is one of the most prevalent world standards relating to the primary production of fruit and vegetables. This standard was designed to provide a guarantee to retailers and consumers, and it covers a system of certification, vegetables, fruits, ornamental plants, flowers, fishing, integrated agricultural production, and livestock production. The Government of the Republic of Serbia or more precisely the Agency for Foreign Investments is giving support in the form of non-repayable financial assistance to domestic companies for the introduction and certification of this standard since 2006.

British Retail Consortium (BRC) is a global standard created because of the need for certification bodies to verify the suppliers of food to adhere to uniform rules requirements, in order to avoid duplication or extra work during their checks. The introduction of this standard enables distributors to focus more on market competition.

International Food Standard (IFC) serves as the standardized control of food safety and quality level of producers. This standard should improve food safety and product quality, to improve security and consumer confidence. (Mijatović, Mirčevski, 2012).

In addition to these two standards that are crucial and ensure food safety are the HACCP system and ISO 22000; therefore, a special emphasis will be put on them in this paper.

HACCP and ISO 22000

HACCP (Hazard Analysis and Critical Points System) was first applied in the Pillsbury Company, which worked for NASA and the US military laboratories. This system was based on the principle of engineering analysis errors, modes and effects dealing with issues of what can potentially go wrong at any stage of the process and it is dealing with the establishing of effective control mechanisms. It was adapted into a system of microbiological food safety in the early stages of the US aerospace research, in order to minimize the likelihood of food poisoning in space. Inspired by the principles and guidelines then used, a new method was developed with a practical and preventive approach that provided a high level of food safety – HACCP concept. This concept represents a systematic approach to food safety management, which is based on the approved principles that seek to identify hazards that are likely to occur at some stage in the chain of delivering food, setting control that prevents danger. This system is very logical and it covers all stages of food production from the farm to the consumer, including all sub-processes and distribution. HACCP system was accepted in the seventies and it is internationally recognized by the World International Organization as the most effective means to control food poisoning diseases. HACCP system is the logical technique that follows several steps.

1. Observing of production, step by step, from the beginning to the end, identifying potential risks and assessing the stages at which the danger may occur, as well as ways of setting control in order to prevent the occurrence of danger.
2. Deciding on which of the implemented controls are absolutely critical to food safety.
3. Setting the limit for the security of the operation of conducted critical controls.

4. Monitoring of controls to make sure they do not exceed safety limits. Monitoring critical limits implies an answer to questions: how, what, how often and who should do it.
5. Identification of corrective measures in case something goes wrong. These measures serve to identify and eliminate the problem.
6. The documentation of requirements and record of all findings on the implementation of HACCP system.
7. The verification that the system works through a regular review which should include persons employed in manufacturing, representatives of inspection at the facility, and of course the HACCP team.

These logical steps build a basis for the use of the seven principles of HACCP and they are internationally recognized. These principles were published by the Codex Alimentarius Commission which was established as a codex by the Food and Agriculture Organization of the United Nations, the World Health Organization, as well as by the National Advisory Committee on Microbiological quality of food in the United States. In addition to general principles and standards, the Codex Alimentarius Commission also brings related documents, i.e. Recommended International Code of Practice (Molitor, Wallace, 2004).

Starting from January 1, 2006, standards on safe food and above all HACCP control system are obligatory in the market of the Member States of the European Union. Full implementation of the HACCP control system also obliges economy subjects from the third countries as a precondition for placing their products on these markets. (Acin, 2013).

In addition to HACCP standards, it is relevant to analyze the international standards ISO 22000. Specifically, this standard is the first international standard specifying requirements for food safety management system by the organization in the food chain needs to demonstrate their ability to control hazards and product safety for consumption. In order to ensure food safety within the ISO 22000 standard, there were combined the following key elements: management system, interactive communication, previous programs and principles of HACCP. ISO 22000 requirements can be applied to all types of organizations within the food chain, i.e.: food producers, food processors, storage and transport, retail food outlets altogether with interrelated organizations (such as producers of equipment, cleaning, packaging materials, additives, and ingredients). This standard should improve food safety and thereby ensure consumer protection. This should be aimed at strengthening consumer confidence, as well as cost-effectiveness in the supply chain of the food industry. ISO 22000 is consistent with the principles of the HACCP standards and it ensures international compatibility of the application of the HACCP (Mijatović, Mirčevski, 2012).

Consumers and Standards

Given the fact that food is an unavoidable part of everyday consumption, consumers are increasingly trying to take care of their diet. For this reason, understanding the attitudes, needs, and evaluation of consumers in relation to various issues related to food safety are of

crucial importance for the development of the system, and standards related to food safety, as well as their implementation. Consumers' behavior in relation to food, in terms of its security, can be adequately predicted if a systematic understanding of how consumers perceive the risks is developed, as well as benefits in connection with various matters of food safety (Savović et. al. 2012). If consumers use food that is unsafe, it may lead to deterioration of health of consumers, leading to increasing economic costs for medical treatment, payment security, absence from work and the like. (Bjelajac et al., 2013). As a result, there has been the development of national standards for the supply of safe food, and many companies and groups involved in food production have developed their own standards or programs to control their suppliers. The development of standards has also been influenced by the growing demand of consumers, increased accountability of sellers, tightening of legal obligations and globalization. In accordance to above mentioned, the Codex standard was developed. The ultimate goal of this standard is to protect consumer's health, prescribe rules for the regulation of agriculture, which means total control of food from seed to final products, as well as ensuring best practices in international food trade (Mijatović, Mirčevski, 2012).

In contemporary culture, food safety is one of the main preoccupations of man. (Bjelajac et al., 2015) On the other hand, the policy of consumer protection has not been provided for in the Treaty on establishing the European Economic Community. Therefore, in the mid-seventies of the past century, the European Community adopted a resolution on a temporary program of the European Community of Consumer Protection in which they pointed out five basic consumer rights:

1. The right to protection of health and safety,
2. The right to protection of economic interests,
3. The right to compensation, and the remedy,
4. The right to information and education, and
5. The right to the presentation.

The creation of a single internal market (Single European Market) was aimed to remove existing trade barriers between member states and to increase their competitiveness. This single European act (Single European Act) created the legal framework for the subsequent adoption of measures relating to consumer protection. Actually, the functioning of the single market is related to harmonizing consumer protection conditions in the member states. Along with the growth of the Single Market, the number of directives increased as well as other secondary regulations each state brought into their legal system by their free choice (Acin, 2013).

Consumer information

Consumers often find themselves in a dilemma which food or products to buy. It can be said that their concern became even greater at the end of the previous century when they crossed different varieties to obtain new, more resistant species, and it was helped by the technology

of genetically modified food (GM). It is essential that consumers have the right to know the facts important for the proper selection of products and to protect themselves from the product labels which mislead them.(Dukić Mijatović, Sudžuka, 2016).

Legal regulations for GM food are very strict in the EU because of the strong consumer mistrust of the European Union towards GM foods. In fact, strong mistrust of European consumers towards GM foods is a consequence of a general distrust of the legal regulations on food safety in the EU. This was certainly contributed by the numerous scandals in this area, among which the most remarkable is “mad cow disease” (Bovine Spongiform Encephalopathy – BSE) in Great Britain. The consumers were very unhappy about the delayed European legislation which did not recognize the risk of BSE on time. Therefore, as a result of this and similar scandals and regulatory failures, European consumers have become very distrustful, even to smallest novelties when it comes to food. This mistrust applies to GM food, as most Europeans do not support GM foods (Vujisić, Mihajlović, 2014).

A consumer estimates quality and health safety of food based on the information provided on the product packaging. It is necessary to mark the foods so that consumers get comprehensive information about the content and composition of the food product. Consumers must have the right to know the important facts relevant for the proper choice and protection on the product labels which mislead them (Košutić et al., 2013). General provisions on labeling food products are contained in the Directive of the European Parliament and Council Directive 2000/13/EC, while Regulation (EC) 1829/2003 on genetically modified animal feed provides a general framework for the regulation of genetically modified food and animal feed in the EU. This framework sets a high level of protection of human life and health, the welfare of the environment and consumers’ interests as a global objective, while also ensuring that the internal market functions efficiently. This Regulation was amended by the Regulation (EZ) 1830/2003, which provides traceability and labeling of genetically modified foods placed on the market.

It is necessary that consumers are informed about the safety of the food they consume, but the question is what happens at the moment when the food reaches the consumer’s basket. However, relatively little research has been conducted in order to test the consumers’ knowledge on food safety and the application of good practices in the preparation of food in households. Based on the modest research, they came to a conclusion that consumers often practice unsafe food handling. This indicates that the consumers need to be pointed out to the application of good practice in the preparation of food in their households (Baltić et al., 2013).

Regulations of the EU and Regulations of the Republic of Serbia

European legislation on food safety has been developing in several stages. The first stage was focused on building a common market. Its history can be followed from the foundation of the European Economic Community in 1958 to the outbreak of the BSE crisis in the mid-nineties. The first part of this stage was placed on harmonization through vertical

legislation.⁴In the second part of the first stage, the focus was shifted to the adoption of the horizontal directive or the directives related to a greater number of products by integrating some common characteristics related to their composition, preparation, trade, etc. (Bunčić, Rudan, 2006).

After the previously mentioned BSE crisis, a more common integrated approach was presented in the European Union, which aims to provide a high level of food safety, animal health, and plant health within the borders of the Union, through the implementation of coherent borders “from farm to fork” and with appropriate monitoring while ensuring the effective functioning of the internal market. The application of this approach involves the development of an adequate legal framework to ensure an effective system of control and evaluation of compliance with the standards of the European Union within the EU but also in third countries in relation to their exports to the EU. Improved legal framework is essential in order to organize international relations with third countries and with international organizations with regard to food safety, as well as to organize relations with the European Food Safety Authority (EFSA) and ensure science-based risk management in this area. The principle of applying integrated approach “from farm to fork”, which covers all sectors of the food chain – from production, processing, storage and food processing to retail sales – was presented by the European Commission entitled as the White Paper on Food Safety (Dabović, 2011). This document constitutes the second stage of legislation development in the field of the food safety in the EU. The White Paper on Food Safety was created on January 12, 2000. The action plan on food safety in the Annex to the White Paper contains a list of 84 legal acts. It is believed that in this way the traditional approach to the control of the finished product was abandoned since the system is based on preventive action, i.e. before the product occurs (Glintić, 2012).

It is relevant to point out that before the adoption of the White Paper in May 1997, the Commission published the Green Papers. This document preceded the White Paper and it was published with the aim to start a public debate and consultation on specific issues. The Green Papers underlines its first and most important principle – consumer protection. That is when the control agency in this area was formed – Food and Veterinary Office (FVO) in Dublin, and there was announced the formation of an independent body for food safety, i.e. the future EFSA (Bunčić, Rudan, 2006).

In order to adequately, scientifically and successfully respond to all issues related to food safety, it was decided to found European Food Safety Authority in the framework of the European Union. The main task of this authority is to examine the food safety for humans and

4 Vertical directives are related to specific groups of products with common features and the requirements for the management of their quality. A good example for this type of directive is a discussion about how many foods should contain cocoa in order to be called chocolate and whether other vegetable fats (except the cocoa butter) can be used at all. Directive 73/241, which refers to cocoa and chocolate products intended for human consumption prescribed the content of 35% cocoa for the entire EU. However, on 3 August 2003 it was changed by a Directive 2003/36 and now some chocolate products can have added some other vegetable fats up to 5% of the total weight.

animals, but also to provide scientific opinions on genetically modified foodstuffs covered by the Directive 2001/18/EC (7). With respect to regulations on food and establishment of the European Food Safety Authority, in 2002 and 2003 were adopted two regulations. The first Regulation 178/2002 of the European Parliament and the Council established the general principles and requirements of the law on food, and the second, Commission Regulation 1304/2003 on the procedure applied by the European Food Safety Authority related to the requirements for issuing scientific opinions related to it (Vilus, 2009).

The Regulation 178/2002 (Regulation (EC) No. 178/2002) comprises 65 members and it directly applies to all Member States. It is divided into the following chapters: the scope and general definitions (Art. 1-3), the general rules on foodstuffs (Art. 4-21), the European Food Safety Authority (Art. 22-49), the rapid alert system, crisis management and emergency cases (Arts. 50-60), and procedures and final provisions (Arts. 58-65). The regulation 1304/2003 (Commission Regulation (EC) No. 1304/2003) shall specify the procedure in the case when the Authority is required a scientific opinion on food safety, which are normally required by the Article 29 of the Regulation 178/2002. The Regulation 1304/2003 provides the existence of a register which records each request in terms of food testing.

Legislation in this area has developed over time in accordance with scientific, social, political and economic needs. Thus, in the period from 2000 to 2004 the European Union committed significant changes and contractions of numerous regulations in the field of veterinary medicine, as part of a special Law on Food Safety of the EU adopted in 2002, which adopted regulations relating to food safety, i.e. Regulation 852/2004 on the hygiene of foodstuffs; Regulation 853/2004 which defines necessary rules and regulations in the field of food hygiene for food of animal origin; Regulation 882/2004 on official controls to be carried out in order to comply with the Law on Animal Feed; Decision 2004/478EC – the adoption of a comprehensive plan in case of crisis management caused by food/animal feed. This long-standing and systematic approach of the EU countries is aimed at facilitating the mutual and international trade by ensuring the quality of partners involved in the sale of food, but it also reduces the cost related to traffic and control.

Due to the fact that Serbia is strategically destined to join the European Union, it is necessary to harmonize its legislation with the EU legal acquisitions. Accordingly, from January 1, 2009, application of HACCP system became a legal obligation for food manufacturers on the territory of the Republic of Serbia.

The reform of the food safety in Serbia started in 2005 with the adoption of the Veterinary Act (Official Gazette No. 91/2005, 30/2010), while legislation in the field of agriculture was most fertile from 2009 to 2010. During this period were adopted more than 30 laws in this area. Among other, there were adopted: Law on Agriculture and Rural Development (Official Gazette of RS 41/09), the Law on Food Safety (Official Gazette of RS, No. 41/2009), the Law on Animal Husbandry (Official Gazette of RS, No 41/2009), the Law on Genetically Modified Organisms (Official Gazette of RS, No 41/2009), the Law on Plant Health (Official Gazette of RS, No 41/2009), etc.

The Law on Food Safety started a comprehensive reform in the field of food safety by

harmonizing standards and regulations with accepted international and European regulations and standards. The main objective of this law is to primarily provide a high level of protection of human life and health and protection of consumers' interests, including the principle of good faith in trade of food, but taking into account (when possible) protection of animal health and welfare, as well as health of plants and environmental protection (Art. 1-3); as the principles of this Act were defined: the principle of risk analysis, precautionary principle, the principle of consumer protection and the principle of transparency. The principle of traceability was adopted, i.e. monitoring of the origin of food at all stages of production, transport, and processing of food and animal feed. This raises the requirements for the registration of all participants in the chain of food production and circulation. The law stipulates that the food safety in the territory of the Republic of Serbia, in the framework of their powers, are provided by entities which are registered in the Central Register of objects, then the Ministry of Agriculture, Forestry and Water Management, Ministry of Health, and the referenced (accredited) laboratories. The law defines the duties of the state administration in the field of food safety. Article 25 of the Act imposes a ban on the marketing of unsafe food, precisely stating which food. Also, regarding the definition of food hygiene, the law provides that food business operators are required to at all stages of production, processing, and distribution of food under their control, to meet the prescribed requirements relating to food hygiene. This means that all persons whose jobs are in the production and distribution of food and come into contact with food must have basic knowledge of food hygiene, but also about personal hygiene and must wear working clothes and shoes. The law also contains rules on genetically modified food and genetically modified animal feed. One of the relevant principles of law is the principle of protecting the interests of consumers, which means that all food business operators are obliged to inform consumers about the composition, properties, and purpose of products.

The adoption of the Law on Food Safety and the Law on Veterinary Practice led to the adoption of a number of ordinances such as: the Ordinance on General and Specific Food Hygiene Requirements at any Stage of Production, Processing and Transport, Regulations on Food Hygiene Requirements, the Ordinance on the Requirements for Labeling and Advertising of Animal Feed, and so on. Based on the foregoing, it can be said that the Republic of Serbia legislation that regulates the field of food safety and consumer protection is largely in line with international standards, as well as with the relevant EU regulations.

Conclusion

Normative analysis leads to the conclusion that only if the national legal regulations relating to food are in line with international regulations, it is possible to establish common standards for international trade of food, which in turn leads to the development of safety and confidence in the food on the market regardless of its origin. By analyzing and studying the legislation related to food safety from the aspect of modern society, it can be concluded that food safety is one of the main preoccupations of the safety culture of modern man and it is receiving substantial attention. This is indicated by the existence of international standards and regulations of the European Union. EU legislation related to food safety is mainly governed by the regulations

and directives that are applied in all Member States. In fact, food safety is the key issue in food legislation in the European Union, and the crisis in the nineties emphasized food security as one of the most important policy priorities of food in the EU, which led to the reconstruction of the European Union legislation on food.

Based on these findings, it can be concluded that food safety in the European Union is of great importance not only to protect the health of consumers but also because of economic importance. An integrated approach to EU food safety aims to facilitate and ensure a high level of food safety, animal health, animal welfare and plant health within the Union, using coherent measures “from farm to fork”, thus covering all sectors of the food chain. The legal framework in this area is presented in the White Paper on Food Safety and directives, ordinances and regulations.

In the Republic of Serbia, the adoption of the Law on Food Safety made a big step forward. The Law itself has initiated the adoption of a large number of by-laws. However, it is relevant to point out that it is very important, in the best possible way, to prepare production, packing and sale of goods with adequate supporting documentation evidencing of compliance with all standards and norms of the European Union, without which business deals would not be possible.

Literature

1. Acin, I. Đ. (2013): *Zdravstveno bezbednosni standardi prehrambenih proizvoda kao oblik zaštite potrošača u Evropskoj uniji*, Poslovna ekonomija, vol. 7, no. 1, pp. 259-277, Fakultet za uslužni biznis, Sremska Kamenica, Republika Srbija
2. Baltić, M., Đurić, J., Mandić, S., Pećanac, B., Ločina, J. (2013): *Potrošači i bezbednost hrane*, *Glasnik hemičara, tehnologa i ekologa Republike Srpske*, vanredno izdanje, pp. 11-16, Tehnološki fakultet, Banja Luka, Bosna i Hercegovina
3. Bjelajac Z., Pocuca M., Dukic-Mijatovic M.(2013): *Uranium and Dioxin Consequences of Bombing of Yugoslavia in 1999 and Its Impact on the Ecosystem and Human Health*, *Journal of Environmental Protection and Ecology*, vol.14, no. 2, pp. 480-492, Balkan Environmental Association, Thessaloniki, Greece
4. Bjelajac Z., Dukic-Mijatovic, M., Kozar, V. (2015): *Review of the Uncontrolled Use of Certain Chemicals and Their Adverse Effect on Human Health and Safe Environment*, *Oxidation Communications*, vol. 38, no2, pp. 722-733, SciBulCom, Sofia, Bulgaria
5. Bunčić, O., Rudan, A. (2006): *Pravni okviri i institucije EU značajni za bezbednost hrane*, *Tehnologija mesa*, vol. 47, no. 1-2, pp. 1-7, Institut za higijenu i tehnologiju mesa, Beograd, Republika Srbija
6. */Codex Alimentarius Commissions Recommended International Code of Practice: General Principles of Foode Hygiene CAC/RCP 1-1969, Rev. 4, 2003*
7. *Commission Regulation (EC) No. 1304/2003 of 11th July on the procedures applied by the European Food Safety Authority to request for scientific opinions referred to it OJ, L 185 24.7, 2003*

8. Dabović, D. (2011): *Propisi Evropske unije u oblasti bezbednosti hrane*, Evropskozakonodavstvo. vol. 10, no. 37/38, pp. 177-187, Institut za međunarodnu politiku i privredu, Beograd, Republika Srbija
9. Dukić-Mijatović, M., Gongeta, S. (2015): *Nova Direktiva o pravima potrošača u Evropskoj uniji*, Evropsko zakonodavstvo, vol. 14, no. 51, pp. 148-160, Institut za međunarodnu politiku i privredu, Beograd, Republika Srbija
10. Dukić-Mijatović, M., Sudžuka E. (2016): *Usklađenost prava zaštite potrošača Republike Srbije i Bosne i Hercegovine sa pravom Evropske unije*, Evropsko zakonodavstvo, vol. 15, no. 56-57, pp. 142.-159, Institut za međunarodnu politiku i privredu, Beograd, Republika Srbija
11. Dukic-Mijatovic M., Bjelajac Z., Kozar, V. (2016): *Flood Risk Management Analysis for Reducing Harmful Effects on Human Health, Environment, Cultural Heritage and Economic Activity in the Republic of Serbia*, Oxidation Communications, vol. 39, no 1, pp. 399-410, SciBulCom, Sofia, Bulgaria
12. *European Parliament and Council Directive 2000/13/EC on the approximation of the laws of the Member States relating to the labeling, presentation and advertising of foodstuffs*, OJL 109, 6.5.2000
13. Glintić, M. (2012): *Bezbednost hrane*, Usklađivanje prava Republike Srbije sa pravnim tekovinama EU, Beograd, Republika Srbija, pp. 75-86
14. Košutić, M., Filipović, J., Plavšić, D., Živković, J., Nježić, Z., Filipčev, B. (2013): *Consumers Attitudes towards Food Safty Messages*, Journal on Processing and Energy in Agriculture, vol. 17, no. 4, pp. 184-186, Nacionalno društvo za procesnu tehniku i energetiku u poljoprivredi, Novi Sad, Republika Srbija
15. Law, G. F. (2002): *Regulation (EC) No. 178/2002 of the European Parliament and of the Council of 28 January 2002, laying down the general principles and requirements of food law, establishing the European Food Safety Authority, and laying down procedures in matters of food safety*. OJ L, 31(1.2)
16. Mijatović, R., Mirčevski, M. (2012): *Sistem menadžmenta bezbednosti hrane*, Vojno delo, vol. 64, no. 1, pp. 337-355, Ministarstvo odbrane Srbije - Vojnoizdavački zavod, Beograd, Republika Srbija
17. Moltimore, S., Wallace, C. (2004): *HACCAP: u proizvodnjihrane i pića*, Novi Sad, Mobes quality, Republika Srbija
18. Pejanović, R. (2015): *Neodrživost dosadašnjeg koncepta razvoja i problem bezbednosti hrane*, Letopis naučnikih radova Poljoprivrednog fakulteta, vol. 39, no. 1, pp. 141-152, Poljoprivredni fakultet, Novi Sad, Republika Srbija
19. *Regulation (EC) 1829/2003 on genetically modified food and feed provides general framework for regulating genetically modified*, OJ L 268, 18.10.2003.
20. *Regulation (EC) 1830/2003 which ensures traceability and labeling of GMOs placed on the marker*, available on: <http://eur-lex.europa.eu/legal-content/en/TXT/PDF/?uri=CELEX:02003R1830-20081211>

21. Savović, I., KokićArsić, A., KanjevacMilovanović, K., Đorđević, A. (2012): *Kvalitet i bezbednost hrane iz ugla korisnika*, Zbornik radova sa nacionalne konferencije o kvalitetu i o kvalitetu života, Kragujevac, Republika Srbija, pp. 105-112
22. Sič, M. (2013): *Zaštita životne sredine: zaštita zdravlja i bezbedna hrana – EU i Srbija*, Zbornik radova Pravnog fakulteta u Novom Sadu, no. 1, pp. 209-227, Pravni fakultet, Novi Sad, Republika Srbija
23. *The Green Papers – The European Food Policy*, available on: http://europa.eu/rapid/press-release_IP-97-370_en.htm
24. Ušćebrka, G. (2011): *Pregled propisa koji se odnose na kvalitet hrane*, Tehnika, vol. 66, no. 1, pp. 161-167, Savez inženjera i tehničara Srbije, Beograd, Republika Srbija
25. Vilus, J. (2009): *Propisi o osnivanju Evropske uprave za bezbednost hrane*, Vodič kroz pravo Evropske unije, Beograd, Republika Srbija, pp. 408-411
26. Vujisić, D., Mihajlović, B. (2014): *Genetski modifikovana hrana - pravo potrošača na izbor i obaveštenost*, Pravo i privreda, vol. 52, no. 7-9, pp. 283-296, Udruženje pravnika u privredi Srbije, Beograd, Republika Srbija
27. *Zakon o bezbednosti hrane*, Službeni glasnik Republike Srbije, no. 41/2009
28. *White paper on Food Safety, Commission of the European Communities 719/1999* http://ec.europa.eu/dgs/health_food-safety/library/pub/pub06_en.pdf

BEZBEDNOST HRANE KAO JEDNA OD OSNOVNIH PREOKUPACIJA BEZBEDNOSNE KULTURE SAVREMENOG ČOVEKA

Željko Bjelajac⁵, Marijana Dukić – Mijatović⁶, Joko Dragojlović⁷

Rezime

Industrijalizacija, proizvodnja u poljoprivredi i upotreba hormona, aditiva, pesticida i sl., uticali su na to da se poveća nezadovoljstvo potrošača, što je dovelo do gubitka njihovog poverenja u institucije koje su zadužene za kontrolu bezbednosti hrane. Kao rezultat navedenog došlo je do izmena i donošenja strožih zakonskih regulativa koje su pratile koncept „od njive do trpeze” kako na nivou Evropske unije, tako i u Republici Srbiji. Stavljajući se akcenat na potrošača i njegovo pravo da raspolaže činjenicama koje su od značaja za pravilan izbor proizvoda (hrane). Shodno tome, razvijaju se međunarodni standardi kojima se obezbeđuje kvalitet i bezbednost hrane. Stoga je cilj rada da se kroz metodološko-teorijski okvir analizira bezbednost hrane i to sa aspekta savremenog čoveka. Metodom analize će biti razloženi pojmovi koji se odnose na bezbednost hrane, dok će normativni metod poslužiti za prikaz legislativa koje regulišu proučavanu materiju bezbednosti hrane i zaštite potrošača na nivou Evropske unije i Republike Srbije, a kroz komparativni metod biće poređeni i sumirani dobijeni rezultati.

Ključne reči: *bezbednost hrane, zaštita potrošača, međunarodni standardi, EU, harmonizacija, Republika Srbija.*

5 Redovni profesor, dr Željko Bjelajac, Univerzitet Privredna akademija, Pravni fakultet za privredu i pravosuđe u Novom Sadu, Ulica Geri Karolja br. 1, 21000 Novi Sad, Republika Srbija, Telefon: +381 64 46 28 967, E-mail: zdjbjelajac@gmail.com

6 Redovni profesor, dr Marijana Dukić-Mijatović, Univerzitet Privredna akademija, Pravni fakultet za privredu i pravosuđe u Novom Sadu, Ulica Geri Karolja br. 1 i Univerzitet u Novom Sadu, Ekonomski fakultet u Subotici, Segedinski put br.9-11, 24000 Subotica, Republika Srbija, Telefon: +381 63 542 093, E-mail: marijana.dukic.mijatovic@gmail.com

7 Docent, dr Joko Dragojlović, docent, Univerzitet Privredna akademija, Pravni fakultet za privredu i pravosuđe u Novom Sadu, Ulica Geri Karolja br. 1, 21000 Novi Sad, Republika Srbija, Telefon: +381649429936, E-mail: jdragojlovic@pravni-fakultet.info

ECO-LABELLING OF ACCOMMODATION FACILITIES AND ITS PERCEPTION BY RURAL TOURISTS: CASE STUDY OF VOJVODINA

Milan Bradić¹, Ljiljana Kosar², Lukrecija Djeri³, Svetlana Vukosav⁴, Vuk Garača⁵

Summary

With transportation, hotel industry eco-efficiency forms the basis of the eco-efficiency in tourism operations. Although the tourism industry is a huge consumer, very few studies has been published on energy saving and renewables in terms of stakeholders' attitudes on the topic. One of the ultimate goals of sustainable development is to foster responsible environmental behaviour not only for tourism operators, but also for tourists themselves. This paper represents the results of qualitative and quantitative research that was conducted in 59 accommodation facilities in rural areas of Vojvodina. The main task of the research was to explore possibilities of improving the environmental aspects of environmental responsible consumer behaviour in the hospitality industry. The aim of the research is to improve the tourism and hospitality market participants understanding of the relationship between positive consumer environmental protection attitude and responsibility with business standards in hospitality industry in rural areas. The research findings show the nature of such relationships.

Key words: *sustainable tourism, hotel management, ecolabeling, Green consumers, Environmental management, Rural tourism*

JEL: *Q5, O13, O14, Z320*

- 1 Milan Bradić Ph.D., Assistant Professor, University of Novi Sad, Department of Geography, Tourism and Hotel Management, Dositeja Obradovića Square no. 3, Novi Sad, Serbia, Phone: +381 21 4852 848, E-mail: milanbradic@gmail.com
- 2 Ljiljana Kosar Ph.D., Full Professor, The College of Hotel Management, Kneza Visislava Street no. 70, Belgrade, Serbia, Phone: +381 11 2543 972, E-mail: ljiljakosar@hotmail.com
- 3 Lukrecija Djeri Ph.D, Associate Professor, University of Novi Sad, Department of Geography, Tourism and Hotel Management, Dositeja Obradovića Square no. 3, Novi Sad, Serbia, Phone: +381 21 450 105, E-mail: djerilukrecija@gmail.com - *corresponding author*
- 4 Svetlana Vukosav, Ph.D, Assistant Professor, University of Novi Sad, Department of Geography, Tourism and Hotel Management, Dositeja Obradovića Square no. 3, Novi Sad, Serbia, Phone: +381 21 4502 848, E-mail: cecamobr@yahoo.com
- 5 Vuk Garača Ph.D, Assistant Professor, University of Novi Sad, Department of Geography, Tourism and Hotel Management, Dositeja Obradovića Square no. 3, Novi Sad, Serbia, Phone: +381 21 4502 836, E-mail: vuk_garaca@yahoo.com

Introduction

Over the last few decades (especially with climate change), concerns related to the environment have progressively escalated (Laroche, Bergeron, Barbaro-Forleo, 2001; Keller, 2010). Many lodging customers, being aware of the environmental damages and the wasting/harming of environmental resources caused by hospitality activities, now look for facilities that follow eco-friendly practices (APAT, 2002; Han, Hsu, Sheu, 2010).

Sustainable consumption is product and resources consumption at rates that stand in concordance with sustainable development. It is observable that current rates of consumption are unsustainable, environmentally unfriendly and lead to resources depletion. Consumers play a fundamental role in enhancing sustainable development through purchase decision. (ISO 14020, Environmental labels and declarations – General principles).

With the growing number of customers seeking “green“, being a green accommodation can provide a basis for good marketing strategies on which its environmentally friendly practices may help position it differently in the competitive arena. Thus, the green accommodation business is believed to be a growing niche of lodging industry (Manaktola, Jauhari, 2007). One of the ultimate goals in sustainable development, especially in rural areas is to foster responsible environmental behaviour not only for tourism operators, but also for tourists themselves (Gossling, 2002).

Recently, international tourism policy is aiming at the improvement of the existing infrastructure, the lengthening of the operation season, the improvement of alternative forms of tourism (i.e. eco-tourism, health tourism etc.) but, always minding environment. Nowadays, many countries strongly encourage positive environmental performance of services and products.

First steps in the introduction of green technologies in accommodation were made in the eighties of the last century. Initial success was achieved in North America, but for decades the activities of “greening” the hospitality operations spread to other continents. Professional organizations from global to the local level, as well as government and non-government organizations in many countries became involved in this process. Soon, the management structure of the industry realized the need of introducing a system of operations and programs relating to the protection of the environment through environmental management, hospitality environmental programs, and assessment of environmental impacts, monitoring indicators and environmental control (Holcomb, Upchurch, Okumus, 2007; Bhattacharya, Sankar, Korschun, 2008). Managers, consumers and other participants in tourism notice the positive results of implementation of environmental responsibility, as part of corporate social responsibility (Waldmann, 2005; Nicolau, 2008). Using the recommendations based on the results of this research the intention of the authors is to encourage formal and informal institutions and organizations to introduce environmental standards in the hospitality industry.

Methodology

The main research concerns the collection of possible useful information and suggestions from guests in accommodation facilities in rural areas of Vojvodina, in order to explore possibilities of improving environmental protection. Although there are various criteria for defining rural areas (Gajić, 2015), due to the simplification of research, each settlement under 10,000 inhabitants was considered for rural.

The main hypotheses of the research are:

- Hypothesis 1 – There is no Environmental Management System in accommodation facilities in rural areas in Vojvodina.
- Hypothesis 2 – Regardless to their socio-demographic characteristics, guests are interested in the implementation of environmental programs in accommodation facilities which they stay.
- Hypothesis 3 – The best way to introduce the program of environmental operations in Vojvodina and Serbia's accommodation industry is certification through the official legal classification and star rating system of hospitality facilities.

The questionnaire used to collect data in the study consists of series of questions concerning guests thoughts on environmental issues, eco-labels, willingness to participate such programs and competence of government in this area. The answers were in the form of grades (Likert scale, 1 to 5 range, 1 – strongly disagree to 5 – strongly agree), which allowed easier statistical analysis.

Environmental aspects of management in accommodation industry

World accommodation industry has (not only) achieved physical growth in tourist, but also spread to environmentally attractive locations in preserved nature. International hotel companies, introducing environmental standards, affect the change of the relation towards the territory by establishing and strengthening awareness of its friability, the need to protect and preserve its original features. This process is particularly important for rural areas, where the consequences of irresponsible behaviour can be devastating (Randelli, Romei, Tortora, 2014).

Eco-accommodation is a type of accommodation in ecotourism, where the philosophy and principles of ecotourism meet. This concept includes educational and experiential perspective, combined with the philosophy of environmental protection. This means that in addition to basic hospitality services and quality tourist experience, which includes experience of tourists and learning about safety, eco-accommodation must provide adequate care for the environment. Eco-accommodation, by its nature, must meet basic ethical principles, as especially observed in small impact on their environment. Planning potential impact can be observed through minimizing influence of roads that lead to eco-accommodation, further, through its architecture, which must be in the style of the local cultural heritage and without compromising aesthetic value, as well as through the management and operations. When

possible, eco-accommodation uses renewable energy sources as solar or wind energy, obligatory working on waste water treatment and recycling of waste (Stojanović, 2006).

Numerous studies show that sustainability programs that are implemented in the tourism industry have no meaning, or at least do not have a full meaning if consumers (i.e. guests) are not included. Here, a special role is played by the processes which serve as a means of promoting sustainability and refer to the involvement of guests in activities where they can directly and empirically experience ecological operations. In most (not all) cases guests would not mind when service is affected by sustainable efforts (Kasim, 2007; Chan, Lam, 2003; Berezan, Raaba, Yoob, Lovea, 2013).

Some papers have shown that the best way to track guests service satisfaction results is insistence on feedback through questionnaires and/or comments. Guests are those who give the final assessment of the efforts made by the management to raise level of sustainability and responsibility. Word-of-mouth practice should be represented in hospitality organizations of all sizes, from individual small rural properties to global hotel groups and chains (Juwaheer, 2004; Manaktola, Jauhari, 2007).

Surely one of the ways to achieve progress in the field of ecological management should be the acceptance and certification of a quality system that deals with this issue. Positive examples can be found in the surrounding of Vojvodina (Serbia), in Romania, Slovenia and Hungary (Tomescu, 2011).

Application of clean technologies in the international accommodation industry

The idea of application of green technologies in accommodation industry is not new, but only recently the necessity of their wider application has been recognized. Just one large hotel can have an impact on the environment which is equal to the impact of all eco-resorts in the whole region together. Problems with eco accommodation are of economic and logistic nature (Sweeting & Sweeting, 2003).

The basic and ideal principle for the realization of the environmentally friendly project or facility, is that the facility has so-called zero footprint, i.e. zero impact on the environment. One should know that a zero footprint is virtually impossible to achieve, but people can try to achieve this value as close as possible.

Energy efficient construction and environmentally friendly materials is the beginning of ecologically oriented business philosophy (Hook, 2009). Programs of using various forms of “clean” energy are increasingly being applied in the hotel industry, as well as harmless or less harmful materials to maintain hygiene (UNWTO, 2011). Sustainable energy is an energy efficient method of production and use which has less harmful environmental impact. Sustainable building is certainly one of the important segments of sustainable development, and it includes the use of building materials that are not harmful to the environment, energy efficiency of buildings and management of the waste from construction and demolition of buildings (IHP, 2005). Energy and ecologically sustainable architecture seeks to:

- reduce temperature loss from facilities by improving the thermal protection;
- increase the heat balance in the facility;
- use renewable energy sources in facilities;
- increase the energy efficiency of power systems.

However, as the main external factor of the temperature change is the Sun, special attention in modern architecture is paid to the protection from the Sun and so-called - *passive architecture*. Architecture highlights the acceptance of sunlight and protection from excessive sunlight, because even the passive heat gains must be controlled and optimized in a satisfactory whole. Modern passive facilities are nowadays defined as structures without active heating systems with conventional energy sources.

Modern so-called *daylight* systems use optical devices to create a reflection, breaking of light beams or for active and passive reception of light. Therefore, these systems should be included in the architecture even in the earliest stages of design.

Renewable energy sources in facilities may be different – the kinetic energy of water, wind, solar energy, and bio fuels, biomass, landfill gas, geothermal energy, etc...

Water and waste management is also of great importance. Hospitality properties of various sizes, with differing technical, financial, knowledge and managerial capacities could address the challenge of implementing water and waste management and obtain commercial benefit (Kasim, Garsoy, Okumus, Wong, 2014).

Principle RRR is base for any business which should be in compliance with the clean environment (RRR or Reduce, Reuse and Recycle). There is often additional 4th R which indicates Report or performs (NCDPEA, 2010).

Eco-labels in tourism and hospitality industry: Eco-labels within tourism sector result from the control of ecological coherence with certain regulations and confirm that tourism company, facilities, product, process, service or management system complies with prescribed ecological standards and criteria. Ecological label is not equal to the reward for environment protection, which recognises “leading examples of natural and cultural heritage of our planet in tourism industry” (UNWTO). The rewards for nature protection are periodical as a rule (annual rewards), whereas eco-labels are valid throughout the period of certain criteria are applied.

Tourism services decide upon introducing environment protection measures in their businesses due to several factors. First, to avoid pollution effects by mass tourism. Second, it is important to become recognised at the market, which also results in economic effects. Obtaining the eco-label has the following positive effects: improving reputation, strengthening market position, improved risk management, profit management, and human resource management, lower operational expenditures, etc.

The sum of all positive factors that emerge from ecologically oriented activity is reflected in economic efficiency of the enterprise, but only for medium or long periods (Bradić, 2011).

It is worth mentioning Green Label, Green Globe 21, Energy Star, Viabono, Ecotel and EU Eco-label as the most frequent and globally recognizable eco-labels in tourism and hospitality.

Determination of the sample and data collection

In determining the quantitative research coverage, all officially classified accommodation facilities (hotels, motels, pensions, tourist villages, serviced apartments, hostels, rural touristic households etc.) in rural areas in Vojvodina were asked to participate in it (to allow guests questioning).

Preparatory steps for data collecting were carried out in the period from 15th January to 31st February, 2015. The main collection and updating of data was carried out from 10th March to 1st August, 2015.

Positive reply to our research appeal was obtained from guests in 59 facilities (located all around Vojvodina).

Table 1. Average hotel capacity (number of beds) by categories

	Number of accommodation facilities	Number of beds	Average number of beds	Average number of employees
TOTAL	59	1,097	18.69	10.74

Source: The author's calculations based on Survey data, 2015.

The questionnaires were distributed to guests in each facility. Simple random sampling was applied to obtain total 718 valid questionnaires (in all 59 accommodation facilities).

Environmental aspects of accommodation industry in Vojvodina

Presence/absence of international environmental business standards was one of the tests in the study. Extremely negative indicator is the fact that at the time of the research as much as 55 accommodation facilities (94%) did not possess any certificate of international business standards. Another major negative surprise is the fact that only one facility has some of the international standards for environment (ISO 14001). That means Hypothesis 1 is mostly proven.

A part of the research is concerned with issues regarding guests' opinions on the environmental aspects of responsible management and eco-labelling in hotel industry. With regard to the fact that Serbia started accession negotiation for joining the EU, certain issues refer to the EU eco-label for tourist accommodation services.

First, descriptive statistical data analysis was conducted within statistical analysis. The obtained results were used to describe the attitudes of hotel guests to the need of introducing environmental standards and eco-labels in the accommodation industry in rural areas of Vojvodina.

Table 2 shows average scores on questions relating to the average attitudes of guests, middle absolute deviation and standard deviation.

Table 2. Descriptive statistical analysis of the responses of rural tourists in Vojvodina

Attitude*	Min	Max	I	μ	M_o	M_c	D	σ
In accommodation you are staying, great attention is paid to environmental issues.	1**	5	4	3.55	4	4.00	0.107	1.118
I am familiar with some of the eco-labels for tourist facilities.	1	5	4	3.26	4	3.00	0.131	1.370
I am familiar with eco-label EU – daisy flower.	1	5	4	3.05	1	3.00	0.149	1.560
Hotels that have received the eco-label are better positioned in the market.	1	5	4	3.84	4	4.00	0.092	0.964
Serbia should introduce one of the internationally recognized eco-labels for accommodation industry.	2	5	3	4.53	5	5.00	0.062	0.646
Serbia should introduce the eco-label of the European Union.	1	5	4	4.26	5	5.00	0.092	0.956
Serbia should introduce its own eco-label for accommodation industry.	1	5	4	3.70	5	4.00	0.133	1.384
Eco-labels could be one of the specializations within the star rating system.	1	5	4	3.91	5	4.00	0.101	1.059
Eco-labels can contribute to greater respect and recognition of tourism in Serbia.	2	5	3	4.38	5	5.00	0.075	0.779
The introduction of the eco-label for accommodation industry would represent a major expense for hotel companies.	1	5	4	3.47	3	3.00	0.106	1.102
With the introduction of eco-labels, accommodation facilities could increase the cost of services and products.	1	5	4	3.10	4	3.00	0.128	1.333
The result of the introduction of eco-labels would be the increase of the quality of accommodation offers.	1	5	4	4.02	5	4.00	0.105	1.097
Accommodation facilities should aspire to join the system of eco-labelling if introduced in Serbia.	2	5	3	4.25	5	4.00	0.083	0.862
* Values of the attitudes were evaluated in the range 1-5 where 1 is –not agree at all, 2 – mostly disagree, 3 – neither agree nor disagree, 4 – mostly agree, 5 – strongly agree. ** where Min is – minimum value of a given response, Max – maximum value of the given response, I – variation interval, μ – arithmetic mean of given responses, D – mean absolute deviation, M_c – median, M_o – the mode and σ – standard deviation								

Source: The author's calculations based on Survey data, 2015.

Correlation analysis urges to answer the question whether there is statistical relationship between socio-demographic characteristics of the respondents (gender - GEN, age group - AGE, Monthly income in EUR – INC, education level - EDU), characteristics of the accommodation they stayed in (star rating - STARS, facility type - TYPE, service potential - SERV) and the score given by the guests for ecologically oriented business of facilities -

SCORE. Accommodation facility rating is done according to official classification which is represented by the number of stars. Facility type is based according to the motive of guest stays. For the purposes of this research a simplified version is based in two basic (conditioned) groups – business and holiday properties. Relative relationship between business and holiday hotels in the observed sample was 91%:9%. Service potential of facilities (SERV) is the ratio between total number of beds and total number of employees.

The fact that only one hotel implemented some of international environmental standards (ISO 14001) prevented further statistical analysis on whether presence/absence of these standards has impact on guests' perception of ecological effect.

After the analysis completion the obtained results were presented in total in Table 3.

Table 3. Correlation Analysis

		GEN	AGE	EDU	INC	STARS	TYPE	SERV	SCORE
GEN	Pearson Correlation	1	-,107	,201	-,059	,422	-,026	,656	-,223
	Sig. (2-tailed)		,270	,057	,545	-,305	,615	-,205	,080
	N	718	718	718	718	718	718	718	718
AGE	Pearson Correlation	-,107	1	-,097	,189	-,081	,121	-,501	,397
	Sig. (2-tailed)	,270		,317	,149	,156	-,331	,074	,105
	N	718	718	718	718	718	718	718	718
EDU	Pearson Correlation	,201	-,097	1	,118	,223	-,422	-,319*	-,558**
	Sig. (2-tailed)	,057	,317		,223	,087	,074	,025	,007
	N	718	718	718	718	718	718	718	718
INC	Pearson Correlation	-,059	,189	,118	1	,348*	,087	,086	,306**
	Sig. (2-tailed)	,545	,149	,223		,032	,118	,077	,000
	N	718	718	718	718	718	718	718	718
STARS	Pearson Correlation	,422	-,081	,223	,348*	1	-,528	,305*	,401**
	Sig. (2-tailed)							-,305 ,156 ,087 ,032 ,096 ,021	,010
	N	718	718	718	718	718	718	718	718
TYPE	Pearson Correlation	-,026	,121	-,422	,087	-,528	1	,909	,301
	Sig. (2-tailed)	,615	-,331	,074	,118	,096		,543	,116
	N	718	718	718	718	718	718	718	718
SERV	Pearson Correlation	,656	-,501	-,319*	,086	,305*	,909	1	,519
	Sig. (2-tailed)	-,205	,074	,025	,077	,021	,543		,080
	N	718	718	718	718	718	718	718	718
SCORE	Pearson Correlation	-,223	,397	-,558**	,306**	,401**	,301	,519	1
	Sig. (2-tailed)	,080	,105	,007	,000	,010	,116	,080	
	N	718	718	718	718	718	718	718	718
*. Correlation is significant at the 0.05 level (2-tailed).									
**. Correlation is significant at the 0.01 level (2-tailed).									

Source: The author's calculations based on Survey data, 2015.

It is noticeable that the respondents with higher education level gave more strict scores to ecological standards of accommodation facilities. The reason for this may be higher ecological awareness compared to guests with lower education level.

However, the scoring of ecological effect by the guests is influenced by various factors. Since correlation showed that there is positive relationship between the number of stars and eco-scores of guests, this leads to a conclusion that one of the ways to introduce eco-labelling in hospitality is to use additional label to the present star rating system. In order to give more detailed explanation about the impact hotel category (STARS) might have on guests' scoring (SCORE) of ecological effects of accommodation facilities, we applied regression analysis method.

Subsequent to the verification of variables conditions for linear regression analysis, various models were tested and the appropriate one was formed. Dependent variable is the score given by the guests (SCORE), whereas control variables are the number of stars (STARS), service potential (SERV) and joint impact of socio-demographic characteristics of the respondents (DEM).

$$SCORE = \alpha_0 + \alpha_1 STARS + \alpha_2 SERV + \alpha_3 DEM$$

Table 4 shows the statistical indicators of the presented model.

Table 4. Model Summary

Model	R	R ²	F	df1	df2	Sig. F Change
1	.609 ^a	.502	3.429	6	60	.006

a. Predictors: (Constant), Category Stars, Service Capacity, Socio-demographic Characteristics

Source: The author's calculations based on Survey data, 2015

The obtained results show the significance sig. = 0.006, which implies that the error risk is under 1%. Thus, we may claim that dependent variable (the score given by the respondents on ecological effect of accommodation facilities) is in statistically dependent correlation with the observed predictors – facility category, service potential, and joint impact of socio-demographic characteristics of the respondents. Since the coefficient of determination is R² = 0.502, total 50.2% correlation between variables is explained by this model, whereas the rest is under some other impacts. The value of linear correlation coefficient with the observed variable (SCORE) and predictors (STARS, SERV, DEM) is R = 0.709 indicating that dependent variable and independent variables in relative strong correlation.

Table 5 shows the values of standard regression coefficients for each variable and their significant values.

Table 5. Regression Coefficients of Model

Model		Non-standardized Coefficient		Standardized Coefficient	t	Sig.
		B	Std. Error	Beta		
a.	(Constant)	1.262	.641		1.972	.052
	Accommodation Facility Stars	3.279	1.595	1.228	2.056	.000
	Service Capacity	-.367	.088	-.514	-4.136	.024
	Socio-demographic Characteristics	.197	.575	.149	1.134	.073
a. Dependent Variable: Guests' score on eco effect of accommodation facilities						

Source: The author's calculations based on Survey data, 2015

Values of regression coefficient in the observed model for variable Accommodation Facility Stars is 1.208 with significance 0.000. Based on that, with the error risk under 1%, it may be concluded that, theoretically, in case other predictors remain unchanged, every increase in category for an additional star results in 1.208 higher guests' score for eco-effect of facility.

Discussion: Assessment of the degree of environmental responsibility in hospitality management

In this section the quality of the analysis presented in the section above is examined. Some of the risks are typical for this kind of research, but some risks are specific to this particular study.

In the Republic of Serbia, the legal framework for the development of environmental responsibility in tourism and hospitality industry includes documents from higher (the Constitution) to lower level (specific laws and regulations). Guests' view of the environmental responsibility in rural accommodation industry was provided by the research.

In addition to the fact that guests gave subjective answers to questions related to the need for introduction of (voluntary) environmental standards in the accommodation industry, some of the answers deserve attention to be paid to them. High average score for attitude – *accommodation facilities that received the eco-label are better positioned in the market* – shows that the guests in rural accommodation in Vojvodina are aware of the market benefits of “green” facilities. Excellent average score received the opinion – *Serbia should introduce one of the internationally recognized eco-labels for the accommodation facilities* – which indicate the confidence in the international eco-labels, although guests were not familiar with the standards prescribed by them. At the same time, the majority supported the position – *Serbia should introduce its own eco-label for accommodation industry* – which may be confusing, but according to additional explanations by the guests, although they trust international eco-labelling, they express doubt into implementation of certain standards without difficulties.

Therefore, as initial solution, there is prevailing opinion that first national eco-labelling should be introduced through a separate label added to the star rating system in Serbia.

Although it is evident that there is still unclear view of what should be fulfilled, and what would be the actual profit from the introduction of environmental labelling. Relatively high average scores for the claim – *Accommodation facilities should aspire to join the system of eco-labelling if introduced in Serbia*, is encouraging. It shows that guests understand the necessity to improve the environmental image of Serbian hospitality (Hypothesis 2 proven). The initiative for the adoption, implementation and control of environmental labels in Serbian tourism and hospitality industry, guests leave to the Government. In their comments, they are not completely certain about the specific steps government should take, but there is the general interest for such programs. The obtained results indicate that in Serbia, or Vojvodina (at the moment), there is no professional or consumer association which would have enough strength and influence to implement eco-labels.

Although it is general opinion that for application of ecological standards capital investments are needed, it should be noted that majority of them are organizational and may be easily and quickly applied. The fact certainly highlights the need for training managerial structures in facilities, as well as the urgent information for the guests to make them aware of ecologically responsible business advantage. Possible educational brochures would aim at directing the guests to perceive environmental problems and make joint efforts to help preserve the environment.

Significant (positive) impact of facility category to its ecological image imposes the conclusion that the most suitable form of introducing ecological standards in hospitality is the additional label to the existing grading (star rating) system – introduction of new special type of accommodation – *eco-accommodation*. Special type of accommodation facilities would have an additional label (added to the stars) that the facilities obtain according to the fulfilment of prescribed standards for certain special type which may lead to competitive advantage since they attract certain target groups of consumers. Eco-accommodation specialization is imposed as a possible legal framework (Hypothesis 3 proven).

Conclusions

This paper did not discuss particular standards the accommodation facilities willing to introduce ecological label must fulfil, but only the possibility of introducing the system of eco-labelling in hospitality in Serbia that would be recognizable for the guests. According to the survey, the most convenient and the most feasible form of promotion ecological responsibility in hotel industry is through the implementation of eco-labels.

Previous analysis of the study indicates that the introduction of eco-labels could be carried out through Eco-accommodation label.

From the point of view of environmental policy, the survey results indicate that some, but not all, situations are win-win. Considering the example of introducing of other standards, basic standards of environmental responsibility should be imposed on all hospitality facilities, leaving the higher level of standards with possible eco-labelling as a voluntary option. As the awareness on positive effect of implemented standards

grows, the number of accommodation facilities with eco-labels will grow due to their competitive advantage at the market. Additional stimulus to the process of obtaining eco-label would be to reduce tax liabilities for these facilities, which is common practice in developed countries.

Our research did not address the eco-labels for rural tourism, but rural tourists perception of eco labels for accommodation facilities. Future research could include the survey of tourists in urban areas regarding eco-labelling and comparison of their responses with responses of tourists in rural areas.

Literature

1. *APAT Tourists accommodation EU eco-label award scheme – Final report*. Italian National Agency for the Protection of the Environment and for Technical Services, Rome, Italy, 2002.
2. Bhattacharya, C.B., Sankar, S., Korschun D. (2008): *Using Corporate Social Responsibility to Win the War for Talent*. MIT Sloan Management Review, Massachusetts Institute of Technology, Vol. 49 No. 2, pp. 37-44, Cambridge, USA.
3. Bradić, M. (2011): *Hotel Industry in Context of responsible Tourism Development*, Ph.D. dissertation, University of Novi Sad, Faculty of Science, Novi Sad, Serbia.
4. Gajić, A. (2015): *Different methodological approaches in defining rural and urban areas*. Architecture and urbanism, Institute of architecture and urbanism of Serbia, Vol. 41, pp. 63-67.
5. *GHA – What are green hotels?*, Green Hotel Association (GHA), 2014, URL <http://www.greenhotels.com/whatare.htm> (accessed on May 10th, 2012).
6. Gossling, S. (2002): *Global environmental consequences of tourism*. Global Environmental Change, Elsevier, Vol 12, No 4, pp. 283–302.
7. Han, H., Hsu, L.T.J., Sheu, C. (2010): *Application of the Theory of Planned Behaviour to green hotel choice: Testing the effect of environmental friendly activities*. Tourism Management, Elsevier Vol 31, No. 3, pp. 325-34.
8. Holcomb, J.L., Upchurch, R.S., Okumus, F. (2007): *Corporate social responsibility: what are top hotel companies reporting?*. International Journal of Contemporary Hospitality Management, Emerald, Vol. 19, No. 6, pp. 461-475.
9. Hooi, A.W.K. (2009): *Competitiveness Through Sustainability In The Tourism Industry*, International conference on green industry, Manila, Philippines.
10. *Guide to energy-efficient building*, IHP – Institute Hrvoje Pozar, The Ministry of Environmental Protection, Spatial Planning and Construction of the Republic of Croatia - Office for housing, municipal management and buildings, the Department of Civil Engineering and Energy, Zagreb, 2005.

11. ISO 14020, Environmental labels and declarations – General principles, ISO, 2015.
12. Juwaheer, T. D. (2004): *Exploring international tourists' perceptions of hotel operations by using a modified SERVQUAL approach – a case study of Mauritius*. *Managing Service Quality: An International Journal*, Emerald, Vol. 14, No. 5, pp. 350 – 364.
13. Karagiorgas, M., Tsoutsos, T., Drosou, V., Pouffary, S., Pagano, T., Lara, G.L. (2006): *HOTRES: renewable energies in the hotels. An extensive technical tool for the hotel industry*. *Renewable and Sustainable Energy Reviews*, Elsevier, Vol. 10, No. 3, pp. 198–224.
14. Kasim, A., Garsoy, D., Okumus, F., Wong, A. (2014): *The importance of water management in hotels: a framework for sustainability through innovation*. *Journal of Sustainable Tourism*, Taylor & Frances, Vol. 22, No. 7, pp. 1090–1107.
15. Keller, M. (2010): *Managing grapevines to optimise fruit development in a challenging environment: a climate change primer for viticulturists*, *Australian Journal of Grape and Wine Research*, Wiley, Vol. 16, No. 1, pp. 56-69.
16. Kelly, J., Haider, W., Williams, P.W., Englund, K. (2007): *Stated preferences of tourists for eco-efficient destination planning options*. *Tourism Management*, Elsevier, Vol 28, No. 2, pp. 377–390.
17. Laroche, M., Bergeron, J., Barbaro-Forleo, G. (2001): *Targeting consumers who are willing to pay more for environmentally friendly products*. *Journal of Consumer Marketing*, Emerald, Vol. 18, No. 6, pp. 503–520.
18. Manaktola, K., Jauhari, V. (2007): *Exploring consumer attitude and behaviour towards green practices in the lodging industry in India*. *International Journal of Contemporary Hospitality Management*, Emerald, Vol. 19, No. 5, pp. 364–377.
19. *The 3R Guidebook for Hotels*, National Environment Agency (NEA) and Singapore Hotel Association (SHA), Singapore, 2006.
20. *Cut Company Costs by Cutting Company Wastes*, NCDPEA – The North Carolina Division of Pollution and Environmental Assistance, North Carolina, 2010.
21. Nikolau, J. L. (2008): *Corporate Social Responsibility – Worth-Creating Activities*. *Annals of Tourism Research*, Elsevier, Vol. 35, No. 4, pp. 990–1006.
22. *Passive House Solutions – Promotion of European Passive Houses*, European Commission under the Intelligent Energy Europe Programme. EIE/04/030/S07.39990, 2006.
23. Randelli, F., Romei, P., Tortora, M. (2014): *An evolutionary approach to the study of rural tourism: The case of Tuscany*. *Land Use Policy*, Elsevier, Vol. 38, pp. 276-281.

24. Stojanović, V. (2006): *Sustainable Development of Tourism and Environment*, 1st edn. Pp. 78-131. Department of Geography, Tourism and Hotel Management, Faculty of Science, Novi Sad.
25. Sweeting, J.E.N., Sweeting, A.R. (2003): *A practical guide to good practice managing environmental and social issues in the accommodations sector*, United Nations Environment Programme (UNEP).
26. Tomescu, A. M. (2011): *Aspects of service Quality and Eco labelling of Romanian Lodging Services*. Proceedings from the conference - European Integration – New Challenges, Oradea, Romania, pp. 693-699.
27. Tsagarakis, K., Bounialetou, F., Gillas, K., Profylienou, M., Pollaki, A., Zografakis, N. (2011): *Tourists' attitudes for selecting accommodation with investments in renewable energy and energy saving systems*. *Renewable and Sustainable Energy Reviews*, Elsevier, Vol. 15, No. 2, pp. 1335–1342.
28. *Factors and Initiatives affecting Renewable Energy Technologies use in the Hotel Industry*, Hotel Energy Solutions project publications, World Tourism Organization, UNWTO, 2011.
29. Waldmann, J. (2005): *Protecting the Environment in the European Union*, In: Meyers M, Woyke W, editors. *Introduction to European Studies*, Münster: Klausenburg.

EKO-OZNAČAVANJE SMEŠTAJNIH OBJEKATA I PERCEPCIJA RURALNIH TURISTA: STUDIJA SLUČAJA VOJVODINA

Milan Bradić⁶, Ljiljana Kosar⁷, Lukrecija Djeri⁸, Svetlana Vukosav⁹, Vuk Garača¹⁰

Rezime

Zajedno sa transportom, ekološka efikasnost hotelijerstva čini osnovu ekološke efikasnosti celokupnog turističkog poslovanja. Iako je turistička delatnost ogroman potrošač resursa, neveliki broj istraživanja se bavio odgovornošću u pogledu stavova različitih činilaca turističkog poslovanja. Jedan od krajnjih ciljeva održivog razvoja je podsticanje odgovornog ponašanja ne samo turoperatera, već i samih turista.

Ovaj rad predstavlja rezultate kvantitativnog i kvalitativnog istraživanja koje je sprovedeno u 59 smeštajnih objekata u ruralnim područjima Vojvodine.

Glavni cilj je bio istraživanje mogućnosti unapređenja ekoloških aspekata odgovornog ponašanja potrošača u hotelijerskoj delatnosti. Zadatak istraživanja je shvatanje prirode odnosa između pozitivnih ekoloških stavova turista i odgovornosti turističke privrede koja se ogleda u novim standardima u turističkoj delatnosti.

Ključne reči: *održivi turizam, ruralni turizam, hotelijerstvo, eko-označavanje, ekološki menadžment*

-
- 6 Docent, dr Milan Bradić, Univerzitet u Novom Sadu, Departman za geografiju, turizam i hotelijerstvo, Trg Dositeja Obradovica br. 3, Novi Sad, Srbija, Telefon: +381 21 4852 848, E-mail: milanbradic@gmail.com
 - 7 Redovni profesor, dr Ljiljana Kosar, Visoka hotelijerska škola, Kneza Viseslava Ulica br. 70, Beograd, Srbija, Telefon: +381 11 2543 972, E-mail: ljiljakosar@hotmail.com
 - 8 Vanredni profesor, dr Lukrecija Djeri, Univerzitet u Novom Sadu, Departman za geografiju, turizam i hotelijerstvo, Trg Dositeja Obradovica br. 3, Novi Sad, Srbija, Telefon: +381 21 450 105, E-mail: djerilukrecija@gmail.com
 - 9 Docent, dr Svetlana Vukosav, Univerzitet u Novom Sadu, Departman za geografiju, turizam i hotelijerstvo, Trg Dositeja Obradovica br. 3, Novi Sad, Srbija, Telefon: +381 21 4502 848, E-mail: cecamobr@yahoo.com
 - 10 Docent, dr Vuk Garača, Univerzitet u Novom Sadu, Departman za geografiju, turizam i hotelijerstvo, Trg Dositeja Obradovica br. 3, Novi Sad, Srbija, Telefon: +381 21 4502 836, E-mail: vuk_garaca@yahoo.com

MODELS OF ENTREPRENURSHIP DEVELOPMENT IN RURAL TOURISM DESTINATIONS IN VOJVODINA¹

Vaso Jegdić², Iva Škrbić³, Srđan Milošević⁴

Summary

The subject of the research in this paper is the development and the application of entrepreneurship in rural tourism destinations. The aim of the paper is to identify key forms of rural entrepreneurship tourism in Vojvodina. General analytic-synthetic method of research was applied, spanning from the bibliographic-speculative to empirical approach.

It has been determined that messuages, villages as tourist products, ethno-houses, and rural households that provide services of accommodation and food, eco-active tourism, tourism offer of food and drinks produced in the system of organic production, as well as traditional rural events, can be the basis of rural tourism product in Vojvodina. The development of rural tourism should be based on effective investment in the tourism offer through entrepreneurial projects that are in accordance with modern trends of demand. Investment into tourism offer in rural tourism destinations would influence the growth of income made from rural tourism, and therefore, the economic development of those areas.

Key words: rural tourism, rural destination, entrepreneurship in rural tourism, Vojvodina.

JEL: Q01, O18.

Introduction

Rural tourism is most frequently organized as a family business in local community. That is the source of its strength needed to initiate self-employment in rural environments, as

1 The paper is a part of the research on the project „Models of entrepreneurship development in sustainable tourism of Vojvodina“, No. 114-451-2487/2016-03, financed by the Provincial Secretariat for Science and Technological development AP Vojvodina, for the period 2016-2019.

2 Vaso Jegdić Ph.D., Associate Professor, University of Educons, Faculty of Sport and Tourism, Radnička Street no. 30a, 21000 Novi Sad, Serbia, Phone +381 63 55 06 38, E-mail: vaso.jegdic@tims.edu.rs

3 Iva Škrbić Ph.D., Assistant Professor, University of Educons, Faculty of Sport and Tourism, Radnička Street no. 30a, 21000 Novi Sad, Serbia, Phone +381 64 20 14 738, E-mail: iva@tims.edu.rs

4 Srđan Milošević Ph.D., Assistant Professor, University of Educons, Faculty of Sport and Tourism, Radnička Street no. 30a, 21000 Novi Sad, Serbia, Phone +381 64 18 00 431, E-mail: srdjan.milosevic@tims.edu.rs

this is a work intense activity. Family organization of labor in rural tourism and a relatively small volume of work enables local tourism to offer what is the key condition in experience economy, which is an authentic experience based on personal contact of rural hosts with tourists, as well as tourists with natural and social environment. If we accept the definition that rural tourism includes all those activities that take place in rural areas, which are based on specificities of rural lifestyle, and which are directed at its preservation, as well as which develop comparative advantages of rural communities, then it is clear that this form of tourism includes diverse activities. Therefore, we can use the term agritourism or tourism that takes place in a countryside household, gastronomic, educational, culturally-historic, adventurous, sports-recreational, ecological, hunting, fisheries rural tourism. It is important to keep in mind that rural tourism must be developed in accordance with the principles of sustainability in its broadest meaning. Sustainability of rural tourism is most broadly defined through: preservation of local culture and identity of local community, preservation of the countryside and natural environment, preservation and sustainable development of rural economy, emphasizing the importance of the support of local, regional and national authorities, but also the balance between tourism activities in a rural area and other activities (Krajnović et al., 2011; Rikalović et al., 2012).

Rural tourism can be seen as one of the mechanisms of reproducing rural economy and rural way of life (Čikić et al., 2015). In defining the term rural tourism, some authors start from the dilemma whether rural tourism or tourism in rural areas should be used as the term, thus wondering if rural tourism is something completely specific or whether it is only tourism taking place in rural space in a specific context. Author Marina Noveli (2005) points to ruralness as an important macro field, within which, specific macro niches are separated (e.g. family farms, festivals and events, trades and folk art, gastronomic offer). Rural tourism is the most encompassing term including all forms of tourism in rural areas (see for example: Lane 1994; Page, Getz 1997; Butler 1998; Garrod et al. 2006; Sharpley, Jepson 2011; Silva, Leal 2015).

Saxena et al. introduce a notion of “integrated rural tourism” – IRT as “tourism explicitly tied to economic, social, cultural, natural and human structure of the location in which it takes place” (Saxena et al., 2007: 3). Basically, the importance of territorial identity and strategic commodification of resources and location is emphasized, as well as the significance of non-local forces in starting local activities (Petrou et al. 2007). The goal of rural tourism management is to achieve sustainable development of rural areas, while respecting their specificities, preserving and affirming the authentic regional and cultural values, as well as the quality of natural environment (Škrbić et al., 2015). In essence, rural tourism is based on the concept of sustainable development of local communities. The idea is to encourage village communities to include new sources of income as additional and not as replacement for the existing activities by developing tourism (McAreevey, McDonagh, 2010).

Although there are numerous rural tourism research studies, there is no universal definition of this term in scientific literature. A suitable definition of rural tourism was formulated by “Trav Info India”: “Rural tourism is “any form of tourism that showcases the rural life, art, culture and heritage at rural locations, thereby benefiting the local community economically

and socially, as well as enabling interaction between the tourists and the local community for a more enriching tourism experience.” (www.travinfoindia.com). Rural tourism is one of the alternative development options of rural environments (Fesenmaier et al., 1995) and it leads to the development of rural areas and a better territorial balance in economic and social sense by diversifying activities (Shtaltovna, 2007). It has an influence on economic revitalization, but also on preserving local culture and resources (Rural Sociological Society and the National Coalition for Rural Entrepreneurship, 2006), meaning it influences the raising of confidence of local population (Andrić et al., 2010). Direct influence of local tourism can be seen in increased production and ensuring a safe placement of agricultural products, increased employment of local community and growth of their wages, increased birthrate, while indirect influence of tourism can be seen through the development of other accompanying activities, such as transport infrastructure and cultural development of the community (Đuričić, 2011; Gannon, 1994; Kieselbach, Long, 1990).

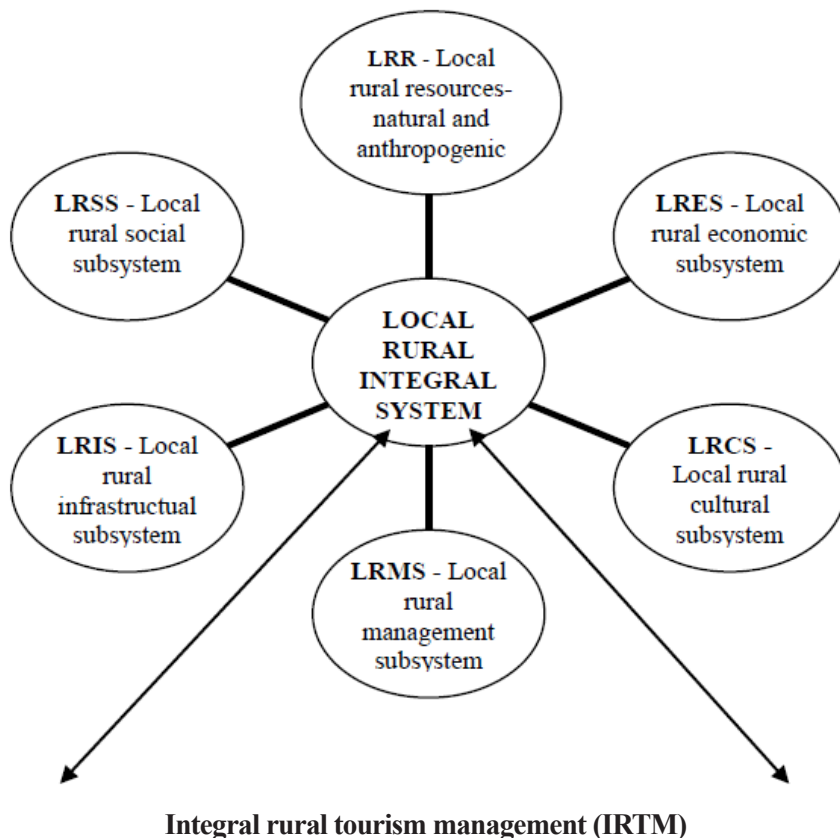
Rural space as a system

The concept of rural spaces is not precisely defined, so this term includes natural areas, rural environment, small settlements and villages, isolated farms with agriculture and forestry as main economic sectors and other (Demonja, Baćac, 2012). Research studies show that rural spaces have high adaptive capacities, meaning that they are “resilient” to external and internal changes. Those changes are partially a result of general global changes, partially of policies, particularly agrarian ones in certain countries, but there are also other driving forces: ecological and sectoral that influence rural areas (Heijman et al., 2007). A more acceptable definition of rural spaces is:

- *economically integrated rural spaces*, in the proximity of urban centers, with oriented agricultural production that are suitable for progress and changes;
- *intermediate rural spaces*, as transitional zones with multi-crop production in countryside households; and
- *remote rural spaces*, with emphasized abandonment of rural areas (Todorović, Štetić, 2009; Bogdanov, 2007).

Rural spaces are structurally very complex systems that consist of several different components. So, Schouten and associates (2009) identified four rural subsystems as the key to understanding how rural spaces function, which are: economic, social, ambience, and public management. Many authors state that rural spaces surpass the four listed components, and they also add cultural component as well as infrastructure. So, the whole matrix of local rural space as a system could consist of six components – specific subsystems (*Graph 1.*):

Graph. 1. Subsystems in local rural space as a system and tourism



Source: Vidić, 2012.

Every local rural community, regardless of the geographical area, differs based on the characteristics of their components – subsystems (Vidić, 2012):

- Inimitable local rural resources – LRR: natural and anthropogenic – protected and unprotected
- Specific local rural social subsystems – LRSS: demographic and social characteristics – education, health, employment, using free time, safety, degree of human development
- Different local rural economic subsystems – LRES: diversified agriculture, multifunctional – in certain places, developed or undeveloped, developing
- Authentic local rural cultural subsystems – LRCS: material and spiritual wealth – traditional and contemporary
- Different levels of development of local rural infrastructural subsystems – LRIS: highways, water supply, sewage, energetics, phone wiring, inclusion into information systems

- Centralized or decentralized concept of functioning of local rural management subsystem – LRMS.

Rural tourism functionally integrates all subsystems in local rural space (*Graph 1*). Local rural resources are the foundation of rural tourist product, or, local rural tourism. Local rural resources represent a potential for tourism, which can be transformed into rural touristic attractions and can be thematically profiled into extremely diversified rural tourism in rural space (Lane, 1994 and 1999). Lane emphasizes rural resources as the most significant element of the rural tourism system. Some authors address rural resources as “rural capital” (Garrod et al., 2006). Local government in local rural communities, particularly local authorities, can encourage and focus local development and “create, strengthen or stabilize activities by using resources of an area in the best way possible”, as it is pointed out by Gref (1994).

Methodology and data sources

The subject of this research is the development and the application of entrepreneurship in rural tourism destinations in Vojvodina. The research employs analytic-synthetic, bibliographic-speculative and empirical methods. The research was realized in the form of a transversal study of empirical character. General analytical-synthetic method of research is used in the paper, spanning from the bibliographic-speculative to empirical approach, with the application of document content analysis technique. As data sources, required for analysis, records of local tourism organizations and the Tourist Organization of Vojvodina (TOV) were used, available internet sites relevant for target field, official reports of rural organizations and their associations, as well as bibliography. Primary data were collected based on observations in the field and through interviews of owners/managers, who developed various tourism concepts based on entrepreneurship programs in rural communities: messuages, ethno-houses, countryside households and workshops, souvenir and old trades shop, and an offer of organically produced food. The research results indicate possible guidelines and models for further development of entrepreneurship in rural tourism destinations in Vojvodina.

The conditions for the development of rural destinations in Vojvodina

According to OECD (1994) categorization, around 90% of Vojvodina’s territory is rural area. To be more precise, out of 45 local communities in total, only five are located in the areas that are not considered rural, and those are: Novi Sad, Sremski Karlovci, Stara Pazova, Temerin and Pančevo, while the remaining 40 are categorized as rural areas. The most represented are economically integrated rural areas, with intensive agrarian production, and then intermediate rural areas as transitional zones with multi-crop production in countryside farms, and remote rural areas, with remains of authentic steppe ambiance, which frequently transition from the zone of rare population density into empty spaces under some type of protection regiments. Currently, 6.4% of Vojvodina’s territory is under protection (Puzović, Panjković, 2015), with significant increase tendency sparked by EU demand that Serbia has 10% of its territory under protection until the moment of joining the EU.

The essence of every tourist destination is comprised of three groups of elements:

- Attractions and attributes that attract tourists or enrich the content of their stay
- Services of accommodation and food for guests, and
- Activities practiced by the guests, meaning conveniences for practicing those activities (Jegdić, 2010).

The ideal combination is to achieve physical and economic balance of these elements participating in forming an integral tourist product. In the initial structuring of each destination and its positioning in the market, the issue of connecting and / or harmonizing the contents and functions is raised, taking into consideration the demands of the visitors, as well as possibilities provided by a specific destination from the standpoint of its sustainability. Thereby, in rural areas economic, socio-cultural, and ecological sustainability is equally taken into consideration (Jegdić, 2011).

The model of rural destination in Vojvodina must be based on creating wider regional destinations that would include one or more protected areas and surrounding rural areas – *eco-rural destinations*, with emphasis placed on recreational, cultural, education and other contents compatible with formation of destination chain value, i.e. tourist product – *eco-tourism product*. Tourist destination *Gornje Podunavlje*, for example, spans across 152.800 ha, while its protected section, Special Nature Reserve (SNR) “Gornje Podunavlje”, includes 19.648 ha, which makes incomplete 13% of the total total surface of the destination. In such wholesome areas, protected natural resources would create a group of attractions, and basic activities should be their observation and sightseeing (birdwatching and game watching – photo safari, enjoying unusual sights and beauties, various researches and educations). Other contents for practicing various activities, based on mastering certain skills and special interests: hiking, bike riding, boat riding, jeep riding, train, carriage, air balloon riding, paragliding and similar., horse riding, rowing, orientation competing, nature survival, sports activities, summer eco-camps, research expeditions and similar., can be based in natural resources of a protected area, but more frequently should take place in rural environments, primarily if for practicing such activities building of larger infrastructure or occupying a larger surface is needed. Considering that small and picturesque villages with local culture – Bački Monoštor, Sonta and Kupusina are located in the surroundings of SNR “Gornje Podunavlje”, it represents an ideal possibility of including local population into all processes of sustainable tourism in their area for the purpose of creating profit for the members of local community. It is possible to include ethnic wealth of local communities with picturesque cultures of various nations into the integral tourism product, from architecture, to folklore, traditional customs, gastronomy, events, celebrations, artistic creations, different kinds and manners of agricultural production, using natural products, dress, old trades and making various hand-made objects. The facilities for accommodation and shopping, apart from in a symbolic volume, should be located outside the protected natural resources. We are in favor of the model of limited construction of tourism infrastructure in protected areas and the construction and usage

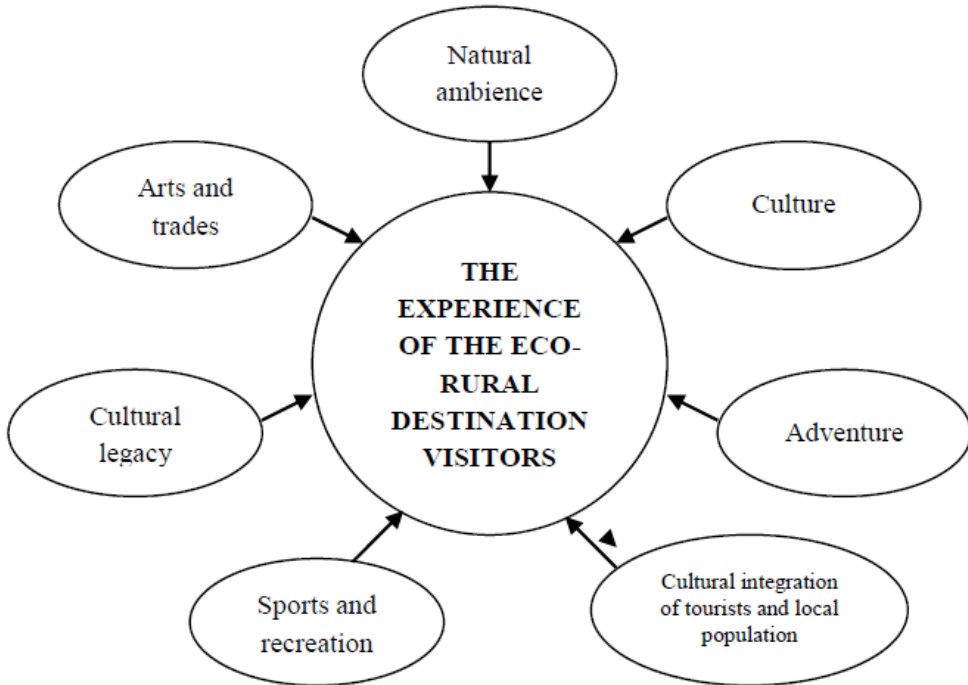
of housing and other capacities in the surroundings of protected areas (messuages, accommodation in countryside households, ethno-houses, fishery houses, houses of secondary accommodation – “weekend cottages”, farms, fishery huts, and similar., as well as facilities for recreational, sports and cultural-entertainment activities).

The second example could be regional destination *Potisje*, which would include Tisa river valley as an ecological corridor connecting a larger number of ecologically sensitive areas and protected areas – SNR: “Pašnjaci velike droplje”, “Slano kopovo”, “Stari Begej-Carska bara” and “Titelski breg”, as well as nature parks (NP): “Stara Tisa kod Bisernog ostrva”, “Jegrička” and “Kamaraš”, as well as a series of areas being prepared for environmental protection, such as the river Tisa itself, attractive still waters and marshes, such as Veliki Donji Rit near Bečej and other. This destination would also include rural contents of countryside settlements and small towns, with the corresponding agricultural and free surfaces.

Tourism destinations of Vojvodina are yet to be formed, and it is to be expected that rural factors in combination with ecological and cultural will be of significant influence to their formation. According to the concentration of these elements, the following potential destinations can be distinguished: *Central Danube region with Fruška Gora* (SNR: “Karadjordjevo”, “Begemara” and “Kovilj-Petrovaradin swamp” as well as NR “Tikvara”, a spatial rural hillside of Fruška Gora with a national park in the center), *Posavina* (SNR: “Zasavica” and “Obedska bara”, with a river bed, spatial forest complexes and surrounding rural area), *Northern Bačka* (SNR: “Ludaško Lake”, NP: “Palić”, “Zobnatica” and “Panonija” and a landscape of extraordinary characteristics “Subotica Sands”) and *Southern Banat* (SNR: “Deliblato Sands” and “Kraljevac”, NR “Ponjavica” and a landscape of extraordinary characteristics “Vršacke mountains”).

Taking into consideration the analyzed spatial-functional conditions, the basic model of the tourist product for rural destinations should be based on an efficient chain of values that includes the contents of the traditionally countryside, eco-active and ethno-tourism (*Graph 2.*).

Graph 2. Model of eco-rural product



Source: Authors' research

The model of rural tourism should balance out all the components of tourism product (attractive resources, infrastructure, equipment, organization, activities and experiences). Profitable rural tourist product of Vojvodina should be at the center of the development, the integral part of which is a maximally preserved environment and cultural specificities of local community, accompanied by a constant improvement of the experience quality of the visitors.

Rural tourism in Vojvodina is recognized as a revitalization factor for the villages when it comes to solving economic and demographic problems. However, rural tourism still does not have a clearly defined marketing mix of elements (product, price, promotion, and distribution), nor is its development based on the foundations of sustainable development (Njegovan et al., 2015).

The areas of application of entrepreneurship in rural tourism of Vojvodina

Entrepreneurship is a driving force of any form of economy, and its importance is particularly emphasized in tourism. Namely, in tourism, human labor is crucial in creating quality tourism offers. Rural tourism is a form of innovative economic activity. It is most frequently organized in the form of family work or small and middle-sized enterprise (SME). Examples of innovations in this area include the construction and adaptations of ecologically sustainable housing capacities, the offer of local products and organizing activities and events based on local tradition and similar.

In Vojvodina, various tourism concepts based on entrepreneurship programs in rural communities are being developed: messuages, ethno-houses, countryside households and workshops, souvenir and old trades shop, and an offer of organically produced food.

Development of tourism product in messuages

Messuages in Vojvodina are grouped depending on the vicinity of a city:

- Sombor messuages – apart from comfortable houses, the tourism offer contains messuages without power and water pipes, equipped with old, traditional furniture
- Čenej messuages – rich and developed agriculture of this area was historically very significant both to Čenej messuages but also for the population of Novi Sad, the city in the vicinity of which these messuages are located
- Bečej messuages – until now there was no significant attempt to active the messuages in Bečej municipality, but by forming adequate tourism product, these messuages can become tourstically active
- Subotica messuages – messuages in the northern part of Bačka were formed in the location of old medieval villages (Demirović, Njegovan, 2014).

The fate of messuages is linked to villages in many ways, although they can be also observed as a relatively independent form of habitation in the Vojvodina plain. Even today, messuages, as monuments to architectural heritage which contain a homeland type of authenticity of Vojvodinian climate, require special protection measures and a suitable care of the social community. In parallel with expert processing and placing suitable institutions under protection, we are also the witnesses of another newly created type of quasi-conservation of messuages by private caterers, degrading in its very basis.

Vanja Dragičević (2007) provides suggestions for a sustainable inclusion of messuages into the tourism offer. She lists that messuages which is decorated for tourists' needs should retain its old appearance, in order not to violate the authenticity of ambience. Messuage, as a kind of ethnographic value, is possible to also decorate as a museum, where visitors could get to know the historical story of the messuage, such way of life, various objects from everyday life of the persons inhabiting the messuage. Messuage settlements could be decorated also as ethno-parks. However, as the messuage represents not only objects, but also a way of life and activity of a Panonian peasant, the messuage should be decorated in such a way that the family – owner of the messuage, lives there during the whole year, conducts agricultural labor at the messuage property and takes in tourists, or visitors. In such a way, tourists would be able to participate in everyday life of the messuage owners, to become familiar with the tradition and folklore as a unique experience of Vojvodina plain.

Apart from that, staying in messuages should be enriched by various sports-recreational and cultural contents, which would fit in with the ambience. As far as sports-recreational activities are concerned, horseback riding schools, nature riding should be provided, hiking and bicycle lanes which would connect the messuages should be decorated, or connect a messuage with a protected natural asset or cultural values in the surrounding area. If there any water surfaces

located in the message or in the proximity of it, fishing competitions or cooking of fish stew competitions could be organized, boat riding, rowing, swimming, and similar. As far as cultural contents are concerned, we suggest organizing courses of old trades, cooking of Vojvodinian specialties, folklore nights and similar.

In the last few decades there have been several initiatives to renovate messages for tourism purposes. Revitalization of messages through tourism can have multiple positive effects, not only to the household, the owner of the message, but also to the general development of rural spaces where messages are located, through economic, demographic, ecological, cultural, infrastructure, communal and integrative effects (Marić, 2001). *Table 1.* shows the number and the share of registered messages in the area of AP Vojvodina, according to the districts.

Table 1. Territorial arrangement of messages in Vojvodina

District	Number	Share (%)	District	Number	Share (%)
Northern Bačka	9	21.8	Northern Banat	2	5.0
Western Bačka	4	9.7	Middle Banat	1	2.4
Southern Bačka	15	36.6	South Banat	3	7.4
Srem	7	17.1	Total	41	100.0

Source: Authors' calculation based on data from TOV, 2016.

Messages (41 objects in total) comprise 27% of the objects in rural tourism in Vojvodina. They are, by large part, located in the area of Southern Bačka (15 messages), Northern Bačka (9 messages) and Srem district. 75.5% of all facilities of message type included in the rural tourism in Vojvodina are located in these districts. Only two municipalities have more than three registered/renovated messages: Novi Sad – 9 and Subotica – 6.

Ethno-houses in rural tourism offer

Ethno-houses in Vojvodina are of special value and are an important element of rural tourism offer. This element of tourism offer, apart from residential rural architecture, also includes traditional economic facilities, the structure of which depended on the type of family farm, the type of production in that farm and the socio-economic wealth of the family.

Most of these facilities, according to their origin and theme, are linked to the period of “Theresian colonization” in the second half of the 18th century, all the way to the beginning of the 20th century. Ethno-houses present national architecture and rural way of life of various ethnic communities. So, for example, the ethno-house in Tork (Žitište) showcases national architecture and the way of life of Romanians in Vojvodina, in Kovačica of Slovaks, in Bački Monoštor of Šokci, and in Belo Blato (Zrenjanin) of multi-ethnic community of Slovaks, Serbs, Bulgarians, Hungarians, etc.

Table 2. Territorial arrangement of ethno-houses in Vojvodina

District	Number	Share (%)	District	Number	Share (%)
Northern Bačka	4	8.0	Northern Banat	6	12.0
Western Bačka	10	20.0	Middle Banat	6	12.0

District	Number	Share (%)	District	Number	Share (%)
Southern Bačka	10	20.0	South Banat	5	10.0
Srem	9	18.0	Total	50	100.0

Source: Authors' calculation based on data from TOV, 2016.

More than 1/3 of the facilities in rural tourism (or 50 facilities) belong precisely to this category. The largest number of ethno-houses are located in Western Bačka, Southern Bačka, and Srem districts (Table 2.). The data according to municipalities show that the largest number of registered ethno-houses is in the municipality Odžaci – 5, which is followed by Sombor, Bač, and Sremska Mitrovica with 4 facilities. It is surprising that there are almost no such facilities in Northern Bačka district, which would be included in the tourist offer despite a rich and multi-ethnic and religious diversity of this area, as well as old facilities which could be renovated.

Countryside tourism households

A countryside tourism household includes a resting house in an agricultural farm. The resting house itself, consisting of a single or several facilities, contains rooms for sleeping, a guestroom, kitchen with dining room, and it frequently has a traditional restaurant for daily guests. The food is prepared from raw materials produced at the farm, and the guests are offered other home-made products (rakija, wine, juices, honey, medicinal, cosmetic and other products). Significant attractiveness of such facilities in Vojvodina is closely related to the natural, cultural, entertainment, and recreational contents and activities which can be done in the immediate vicinity with the elements of local characteristics and heritage.

According to the Law on Tourism of RS, Article 39, a tourism organization of a local self-government unit is obliged to conduct affairs of “intermediating in providing services in homecraft and countryside tourism household” and to keep a register of financial and other records. According to the same Law, Article 76, a countryside tourism household can be founded by an economic society, entrepreneur, as well as by a natural person, however, in the final case the housing capacity is limited to 30 beds.

Table 3. Territorial arrangement of countryside tourism households in Vojvodina

District	Number	Share (%)	District	Number	Share (%)
Northern Bačka	1	3.6	Northern Banat	1	3.6
Western Bačka	1	3.6	Middle Banat	0	0.0
Southern Bačka	20	71.4	South Banat	1	3.6
Srem	4	14.2	Total	28	100.0

Source: Authors' calculation based on data from TOV, 2016.

It can be stated that these facilities are represented in a smaller number compared to messuages and ethno-villages in the rural-tourism offer of Vojvodina. Today, there are 28 of them in total and participate only with 19% of the total number of registered facilities in rural tourism. According to the data in Table 3., the largest part of countryside households is located in Southern Bačka district (21), and all of them almost exclusively in the Bački

Petrovac municipality, as many as 19. Only Srem district has more than one such household. Considering the possibilities seen by inspecting the field, as well as the fact that the registration of these households was commenced in the last 10 years, an expansion of this form of entrepreneurship in the rural tourism of Vojvodina is to be expected.

Workshops and souvenir shops and shops of old trades products

By perceiving the problem of souvenir and old trades products in the function of rural tourism in Vojvodina, we noticed insufficient presence of these products in the total tourism offer. While contacting local tourism organizations, it was noticed that even where there are already existing trading products that could be offered touristically, the manufacturers lack the marketing knowledge for the promotion and sales, as well as partnership relations with tourism operators, for the purpose of integrating these products into the wholesome offer.

Workshops and souvenirs and old trades shops comprise 1/5 of the total number of facilities in rural tourism of Vojvodina – total of 29 facilities (*Table 4*).

Table 4. The arrangement of workshops and souvenir shops and shops of old trades products in Vojvodina

District	Number	Share (%)	District	Number	Share (%)
Northern Bačka	0	0.0	Northern Banat	2	6.9
Western Bačka	2	6.9	Middle Banat	2	6.9
Southern Bačka	13	44.8	South Banat	10	34.5
Srem	0	0.0	Total	29	100.0

Source: Authors' calculation based on data from TOV, 2016.

Apart from the relatively small number of this type of workshops and shops, they are spatially concentrated almost exclusively in two districts – Southern Bačka and Southern Banat (79.3%), or even narrowly, in two municipalities – Beočin (37.9%) and Kovačica (34.5%).

Offer of food produced in the system of organic production

Organic production includes the production of food and supplies (primary agriculture, manufacturing and distribution), but also some other products of herbal and animal origin (cloth, leather, cosmetics). According to its basic standards, it is based on the application of the agro-ecology principle. It is a legally regulated production and it includes control and certification of production and products (www.organiccentar.rs).

The basic purpose of an organic farm is self-sustainability. It is very important that a balanced relation of vegetable and animal production ensures enough food for farm animals, meaning that animal husbandry ensures organic fertilizer. On average, for 1 ha of vegetable production, 1-2 possible large livestock animals are needed. Self-sustainability is also achieved by multifunctional agriculture (diverse production) as well as by multifunctionality of agricultural household, particularly of the family type. Those are eco-farms, or Vojvodina messuages (Lazić, Malešević, www.zelenamreza.org).

Vojvodina offers exceptional convenience for the development of agriculture within the system of organic production (Pejanović, Njegovan, 2011). Worldwide, there is trend of including these products into the gastronomic offer of rural tourism. The offer of food produced in such a way would contribute to improving the quality of gastronomic offer within the tourism offer of Vojvodina, and it would also contribute to an increase of this production in Vojvodina.

In Vojvodina, there is no unified basis of organic food manufacturers, but certain areas have become recognized by organic production. Placing the organically produced products into the tourism offer would ensure profitability and sustainability of organic production and authenticity of tourism offer. Some settlements that have the potential of becoming the destinations of bio-rural tourism are: Selenča – organic juices, farmer crops, Japanese apples (kaki), Sombor – a wide assortment of raw, vegan, biological and organic food products, Stajjevo – organic cereal, Hajdukovo – cold pressed edible herbal oils, oil seeds butter, Pivnice and Temerin – organic vegetables, Čurug – organic milk and meat, Stari Ledinci – organic grapes and wine, Novi Sad – cold pressed edible herbal oils, homemade soap and cosmetics. NGO Green Network of Vojvodina (Novi Sad) plays an important role in the development of organic agriculture – arranges educations, gathers certified manufacturers, promotes and places organic products in the “My message” market and a specialized shop. Vojvodina cluster of organic production is also formed in Novi Sad (www.organiccentar.rs).

For the purpose of developing bio-rural tourism in the area of Vojvodina, it is necessary to ensure financial means for subventions from the provincial budget, which would also include supporting the development of organic agriculture in an agricultural household, but also supporting the development of rural tourism in that household (Radović et al., 2011).

Conclusion

As far as tourism destinations of rural character are concerned, tourism is the main generator of entrepreneurship development in activities directly or indirectly contributing to product formation and services for the visitors (accommodation in facilities in a family farm, gastronomic offer, recreational activities, festivals and events, trades and folk art). The most important effects of rural tourism can be seen in the development of entrepreneurship at a destination, and the influence on infrastructure construction. A direct influence of rural tourism can be seen in increased production and ensuring a safe placement of agricultural products, increased employment rate of local population, and the growth of their wages. Local rural system plays a very important role in the process of rural tourism development. Efficient management of rural tourism development is not possible without cooperation and partnerships of all stakeholders. The development of rural tourism should be based on effective investment into tourism offer by creating entrepreneurial projects that are in accordance with modern market trends.

Vojvodina has significant natural and social resources that can contribute to the development of entrepreneurship in rural tourism. In order for a continued development of entrepreneurship, it is necessary to actively include social, political and other institutions and individuals to create pre-conditions and facilitate initiating entrepreneurial activities.

It is necessary to increase the efforts to renovate numerous localities and facilities, which can improve the pride of local community towards their local area, customs and heritage, and can encourage individuals to start or expand entrepreneurial projects in rural tourism. The development of entrepreneurship as far as rural tourism in Vojvodina is concerned must be based on the principles of sustainable development. If a destination decides that rural tourism is its chosen direction of development, it must carefully plan and manage that development, which will not only satisfy the needs of tourists but should also ensure sustainable development of local community.

References

1. Andrić, N., Tomić, D., Tomić, G. (2010): *Status and Perspectives of Development of Rural Tourism in the Autonomous Province of Vojvodina*. 118th EAAE Seminar- Rural development: governance, policy design and delivery, Ljubljana, Slovenija, pp. 611-621.
2. Bogdanov, N. (2007): *Mala ruralna domaćinstva u Srbiji i nepoljoprivredna ekonomija*. UNDP, Beograd, Srbija.
3. Butler, R.W. (1998): *Rural recreation and tourism*, in B. Ilbery (ed) - The geography of rural change, pp. 211-32, Addison Wesley Longman, Harlow, UK.
4. Čikić, J., Petrović, M., Đurđev, B. (2015): *Difusion of knowledge and rural tourism development – Example of Vojvodina*. Economics of Agriculture, Vol. 62, No. 1, pp. 123-136, Institute of Agricultural economics, Belgrade, Serbia.
5. Demirović, D., Njegovan, Z. (2014): *Tourist satisfaction with perceived values on traditional farms in AP Vojvodina*. U: D. Cvijanović (ed.), Conference - Sustainable agriculture and rural development in terms of the Republic of Serbia strategic goals realization within the Danube region, Belgrade, Serbia, pp. 648–664.
6. Demonja, D., Baćac, R. (2012): *Contribution to the Development of Rural Tourism in Croatia: Proposed Steps for Successful Business*. Turizam, Vol. 16, No. 4, pp. 134-151, Institut za turizam, Zagreb, Hrvatska.
7. Dragičević, V. (2007): *Turizam kao faktor revitalizacije salaša - primer Cvetnog i Majkinog salaša na Paliću*. Zbornik radova Geografskog instituta „Jovan Cvijić“, 57, pp. 223-231, SANU, Beograd, Srbija.
8. Đuričić, B. Đ. (2011): *Uticaj turizma na razvoj agrarne proizvodnje u Zlatiborskom okrugu*. Naučna konferencija sa međunarodnim učešćem - Agrobiz 2011, Novi Pazar, Srbija, pp. 115-122.
9. Fesenmaier, J., Fesenmaier, D., Van Es, J. C. (1995): *The nature of Tourism Jobs in Illinois: Draft Report*, University of Illinois, Laboratory for Community and Economic Development, Illinois, USA.
10. Gannon, A. (1994): *Rural tourism as a factor in rural community economic development for economies in transition*. Journal of Sustainable Tourism, pp. 51-60, Taylor & Francis Online.

11. Garrod, B., Wornell, R., Youell, R. (2006): *Re-conceptualising rural resources as countryside capital: The case of rural tourism*. Journal of Rural Studies, Vol. 22, No. 1, pp. 117-28. Institute of Rural Sciences, University of Wales Aberystwyth, Aberystwyth, UK.
12. Greffè, X. (1994): *Is rural tourism a lever for economic and social development?* Journal of Sustainable tourism, Vol. 2, No. 1-2, 22-40, Taylor & Francis Online.
13. Heijman, W., Hagelaar, G., Heide, M.v.d., (2007): *Rural resilience as a new development concept*, EAAE seminar Serbian Association of Agricultural Economists, Novi Sad, Serbia.
14. Jegdić, V. (2010): *Model razvoja ekoturizma u Vojvodini*. Ekonomski horizonti, Vol. 12, No. 1, 63-78, Kragujevac, Srbija.
15. Jegdić, V. (2011). *Turizam i održivi razvoj*. Fakultet za sport i turizam, Novi Sad, Srbija.
16. Kieselbach, S. R., Long, P. T. (1990): *Tourism and the rural revitalization movement*. Parks and Recreation, 25(3), pp. 62-66, Sagamore Publishing, Arlington, USA.
17. Krajnović, A., Čičin-Šain, D., Predovan, M. (2011): *Strateško upravljanje razvojem ruralnog turizma - problemi i smjernice*. Oeconomica Jadertina, pp. 30-45, Sveučilište u Zadru, Odjel za ekonomiju, Zadar, Hrvatska.
18. Lane, B. (1994): *What is rural tourism?*, Journal of Sustainable Tourism, Vol. 2, No. 1-2, pp. 7-21, Channel View Publications, Clevedon, United Kingdom.
19. Lane, B. (1999). *What is Rural Tourism? Its Role in Sustainable Rural Development*, Paper presented at Nordisk Bygdeturism Nätverk Conference, Kongsvinger, Norway, available at: <http://www.bygdeturism.com/kongs1.pdf>
20. Lazić, B., Malešević, M: *Organska poljoprivreda*, Institut za ratarstvo i povrtarstvo, Novi Sad, Srbija, available at: <http://www.zelenamreza.org/home/multifunkcionalna-poljoprivreda/odrziva-poljoprivreda/vise-o-odrzivoj-poljoprivredi-i-korisne-adrese/organska-poljoprivreda-da.html>
21. Marić, R. (2001): *Turistička delatnost – bitan faktor prosperitetnijeg razvoja ruralnih područja*, Prvi forum – Ruralni turizam i održivi razvoj Balkana. Zbornik radova, Kragujevac, Srbija, pp. 120-140.
22. McAreavey, R., McDonagh, J. (2010): *Sustainable Rural Tourism: Lesson for Rural Development*. Sociologia Ruralis, Vol. 51, No. 2, pp. 175-94, Queens University Belfast, Belfast, UK.
23. Njegovan, Z., Demirović, D., Radović, G. (2015): *Upravljanje održivim razvojem ruralnog turizma u Vojvodini*. Škola biznisa, No. 1, pp. 68-79, Visoka poslovna škola strukovnih studija, Novi Sad, Srbija.
24. Novelli, M. (2005): *Niche Tourism. Contemporary Issues, Trends and Cases*, Elsevier Butterworth-Heinemann, Burlington, MA, USA.
25. OECD, (1994): *Stvaranje ruralnih indikatora za uokvirivanje teritorijalnih politika*, Paris.

26. Page, S.J., Getz, D. (1997): *The business of rural tourism: International perspectives*. International Thomson Business Press, London, UK.
27. Pejanović, R., Njegovan, Z. (2011): *Principi ekonomije i agrarne politike*. Poljoprivredni fakultet, Novi Sad, Srbija.
28. Petrou, A., Pantziou, E.F., Dimara, E., Skuras D. (2007): *Resources and activities complementarities: the role of business networks in the provision of integrated rural tourism*. Tourism Geographies, Vol. 9, No. 4, pp. 421-40, Taylor & Francis Online.
29. Puzović, S., Panjković, B. (2015): *Upravljanje prirodnom baštinom u Vojvodini*. Pokrajinski zavod za zaštitu prirode, Novi Sad, Srbija.
30. Radović, G., Pejanović, R., Glavaš-Trbić, D. (2011): *Problem finansiranja proizvodnje zdravstveno bezbedne hrane kao faktora razvoja ruralnog turizma u AP Vojvodini*. U: M. Krajinović (ur.), 22nd International Symposium Food safety production, Proceedings, Poljoprivredni fakultet, Trebinje, BiH, pp. 241-242.
31. Rikalović, G., Stojanović Ž., Zorka Z. (2012): *Novi obrazac privrednog razvoja i zapošljavanja - model kreativne ruralne industrijalizacije*. Zbornik Matice srpske za društvene nauke No. 141, pp. 565-82, Matica srpska, Novi Sad, Srbija.
32. Rural Sociological Society and the National Coalition for Rural Entrepreneurship. (2006, January). *Tourism and Amenity-based Development in Rural Communities. Issue Brief: Challenges for Rural America in the Twenty-first Century*, available at: <http://www.ruralsociology.org/briefs/briefs3.pdf>
33. Saxena, G., Clark, G., Oliver, T., Ilbery, B. (2007): *Conceptualising integrated rural tourism*. Tourism Geographies, Vol. 9, No. 4, pp. 347-70, Taylor & Francis Online.
34. Sharpley, R., Jepson, D. (2011): *Rural tourism: A spiritual experience?* Annals of Tourism Research, Vol. 38, No. 1, pp. 52-71. Elsevier B.V.
35. Shouten, M., Heide, M. v.d., Heijman, W. (2009): *Resilience of social-ecological systems in European rural areas: Theory and prospects*. Paper prepared for presentation at the 113th EAAE seminar: The role of knowledge, innovation and human capital in multifunctional agriculture and territorial rural development, Institute of Agricultural Economics, Belgrade, Serbia, pp. 117-130.
36. Shtaltovna, A. (2007): *Role of Governance in the Diversification of Rural Economy, Analysis of two Ukrainian Cases*, M.Sc. thesis, Ghent University of Belgium, Ghent, Belgium.
37. Silva, L., Leal, J. (2015): *Rural tourism and national identity building in contemporary Europe: Evidence from Portugal*. Journal of Rural Studies, Vol. 38, pp. 109-19, Elsevier.
38. Škrbić, I., Jegdić, V. Milošević, S., Tomka, D. (2015). *Development of Sremski Karlovci wine tourism and integration in the regional tourism offer*. Economics of agriculture, LXII(1/2015), pp. 229-244. Institute of Agricultural economics, Belgrade, Serbia.
39. Todorović M., Štetić, S. (2009): *Ruralni turizam*. Univerzitet u Beogradu, Geografski

fakultet, Beograd, Srbija.

40. Vidić, N. (2012): *Razvoj turizma ruralnih prostora*. U D. Tomka, V. Jegdić (ur.) Turizam i lokalni razvoj, naučna monografija, pp. 129-134. Fakultet za sport i turizam, Novi Sad, Srbija.
41. *Zakon o turizmu*, Službeni glasnik Republike Srbije, no. 84/2015.
42. <http://www.organiccentar.rs/baza-proizvodaca/>
43. http://www.travinfoindia.com/rural_india_travel.html

MODELI RAZVOJA PREDUZETNIŠTVA U DESTINACIJAMA RURALNOG TURIZMA U VOJVODINI

Vaso Jegdić⁵, Iva Škrbić⁶, Srđan Milošević⁷

Rezime

Predmet istraživanja u ovom radu predstavlja razvoj i primena modela preduzetništva u destinacijama ruralnog turizma. Cilj rada je identifikovati ključne oblike preduzetništva u destinacijama ruralnog turizma u Vojvodini. Primenjen je opšti analitičko-sintetički metod istraživanja, u rasponu od bibliografsko-spekulativnog, do empirijskog pristupa.

Utvrđeno je da salaši, sela kao turistički proizvodi, etno-kuće i seoska domaćinstva koja pružaju usluge smeštaja i ishrane, eko-aktivni turizam, turistička ponuda hrane i pića proizvedenih u sistemu organske proizvodnje, kao i tradicionalne ruralne manifestacije mogu da budu osnova proizvoda ruralnog turizma Vojvodine. Razvoj ruralnog turizma treba da se zasniva na efektivnom investiranju u turističku ponudu kroz preduzetničke projekte koji su u skladu sa savremenim trendovima na strani tražnje. Investiranje u turističku ponudu u destinacijama ruralnog turizma uticalo bi na rast prihoda od ruralnog turizma, a samim tim i na ekonomski razvoj tih oblasti.

Ključne reči: ruralni turizam, ruralna destinacija, preduzetništvo u ruralnom turizmu, Vojvodina.

5 Vanredni profesor, dr Vaso Jegdić, Univerzitet Edukons, Fakultet za sport i turizam, Radnička Ulica br. 30a, 21 000 Novi Sad, Telefon: +381 63 55 06 38, E-mail: vaso.jegdic@tims.edu.rs

6 Docent, dr Iva Škrbić, Univerzitet Edukons, Fakultet za sport i turizam, Radnička Ulica br. 30a, 21 000 Novi Sad, Telefon: +381 64 20 14 738, E-mail: iva@tims.edu.rs

7 Docent, dr Srđan Milošević, Univerzitet Edukons, Fakultet za sport i turizam, Radnička Ulica br. 30a, 21 000 Novi Sad, Telefon: +381 64 18 00 431, E-mail: srdjan.milosevic@tims.edu.rs

MUSEUM OF VERNACULAR ARCHITECTURE OF WESTERN SERBIA - Representative curtilages of the area surrounding middle course of the river Drina and Podgorina

Duško Kuzović¹

Abstract

The Museum of vernacular architecture of western Serbia will consist of four representative curtilages and four different entities. This paper presents two curtilages representing the area of the middle course of the river Drina, and the area of Podgorina. The buildings typically located in the curtilage are: house, magaza (plural: magaze) - food storage shed, kačara (plural: kačare) - cask shed, vajat (plural: vajati) - cottage for newly-wed couples, granary, maize granary, bread oven, ox cart shed. The buildings are presented by drawings and photographs. The text describes curtilage organization; this comprises buildings position, organization and structure.

Key words: *Vernacular architecture of Serbia, western Serbia, Museum of vernacular architecture, vernacular architecture, traditional architecture.*

JEL: *O13, O22, O44, Q19.*

Introduction

Vernacular architecture of western Serbia must be protected as soon as possible so that the rare specimens of surviving buildings could be properly presented. It is necessary to gather the valuable specimens on one place, into a museum which would consist of several curtilages representing the characteristic spatial entities of western Serbia. The curtilages would include buildings such as houses, *vajati*, *magaze*, *kačare*, stables, granaries and maize granaries,

Stojan Obradović (Obradovic, 1858), Felix Kanitz (Kanic, 1985), wrote about the northern part of Užička Crna Gora and Sokolska nahija (district) in the second half of the 19th century, while Ljuba Pavlović (Павловић, 1925), Jovan Cvijić (Цвијић, 1931) and Dragiša Pantelić (Пантелић, 1936) wrote about them in the beginning of 20th century.

During the mid-20th century, Branislav Kojić (Kojić, 1949; Kojić, 1941), Aleksandar Deroko (Deroko, 1968; Deroko, 1964), Jovan Krunić (Krunić, 1983), Ranko Findrik (Findrik, 1995; Findrik, 1998), Božidar Krstanović (Krstanović, 2000), Blagota Pešić (Pešić, 1991; Pešić,

1 Duško Kuzović Ph.D., Assistant Professor, Eastern Mediterranean University, Faculty of Architecture, TRN Cyprus, E-mail: dusko.kuzovic@gmail.com

1988), etc., published on this topic as well. Milan Karanović (Karanović, 1927), Muhamed Kadić (Kadić, 1967), Špiro Soldo (Soldo, 1932) and Hamdija Kreševljaković (Kreševljaković, 1957) wrote about vernacular architecture in Bosnia and Herzegovina, which is very similar to that of western Serbia.

The task of this paper is to propose the elements and concepts for a representative curtilage in middle course of the river Drina area and Valjevo Podgorina within the Museum of vernacular architecture of western Serbia.

The goal of this paper is to identify the zones featuring characteristic building methods, define the contents of the curtilage and describe the typical outbuildings within a representative curtilage in the Museum.

The basic material for this paper is the material collected in the field in the 1996-2000 period and published in national and international scientific publications on the fundamentals of traditional architecture (Kuzović, 1996/1997; Kuzović, 1996), curtilage (Kuzović, 2014), houses (Kuzović, 2013; Kuzović, Крсмановић, 2013), *vajati* [cottages for newly-weds couples] (Kuzović, 2016), *magaze* [food storage sheds] (Kuzović, 2013), granaries (Kuzović, 2012), maize granaries (Kuzović, 2013), summer abodes (Kuzović, Stojnić, 2015), watermills and fulling mills (Kuzović, Stojnić, 2015), structural designs (Kuzović, 2012b; Kuzović, 2012a), elements of aesthetics and philosophy (Kuzović, Stojnić, 2014; Kuzović, Stojnić, 2013) and protection of vernacular architectonic heritage (Kuzović, 2013; Kuzović, 2015a; Kuzović, 2015b).

CONCEPT OF THE MUSEUM AND COMPOSITION OF THE CURTILAGES

Concept of the museum

The Museum presents Vernacular architecture of the central part area of western Serbia, bounded on the north by the river Sava valley, on the east by Suvobor mountain, on the south by the rivers Skrapež and Zapadna Morava, and on the west by the river Drina.

The museum will be composed of the central complex and four independent entities: summer abodes, watermills, buildings featuring specific designs, economy buildings and old crafts display. [Table 01]

This paper will analyze the material and the proposal for the curtilages characteristic for the middle course of the river Drina area and for the villages of the Valjevo Podgorina region.

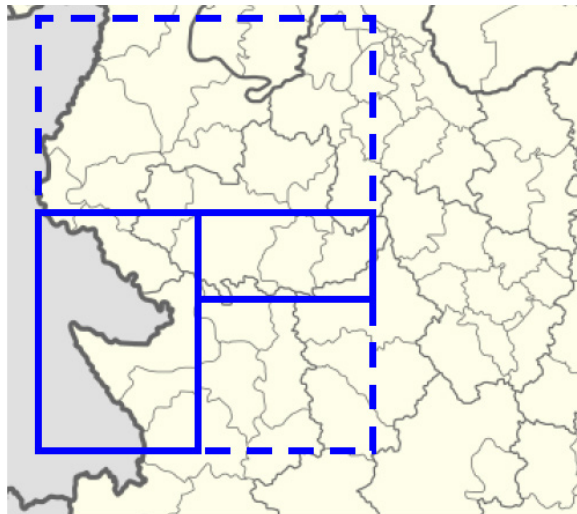
It is an area bounded on the north by the town of Loznica valley, and on the south by the town of Bajina Bašta valley, on the west by Povlen mountain and on the east by the river Drina valley. [Figure 01]

Table 1. Concept of the Museum

<p>CENTRAL EXHIBITION</p> <p>Curtilage in the area of Povlen mountain</p> <p>Curtilage in the rivers Skrapež and Lužnica valley areas</p> <p>Curtilage in the middle course area of the river Drina</p> <p>Curtilage in the area of Podgorina</p>			
ENTITY 1	ENTITY 2	ENTITY 3	ENTITY 4
Summer abodes	Watermills	Specific structural designs	Economy buildings and old crafts

Source: Work of author

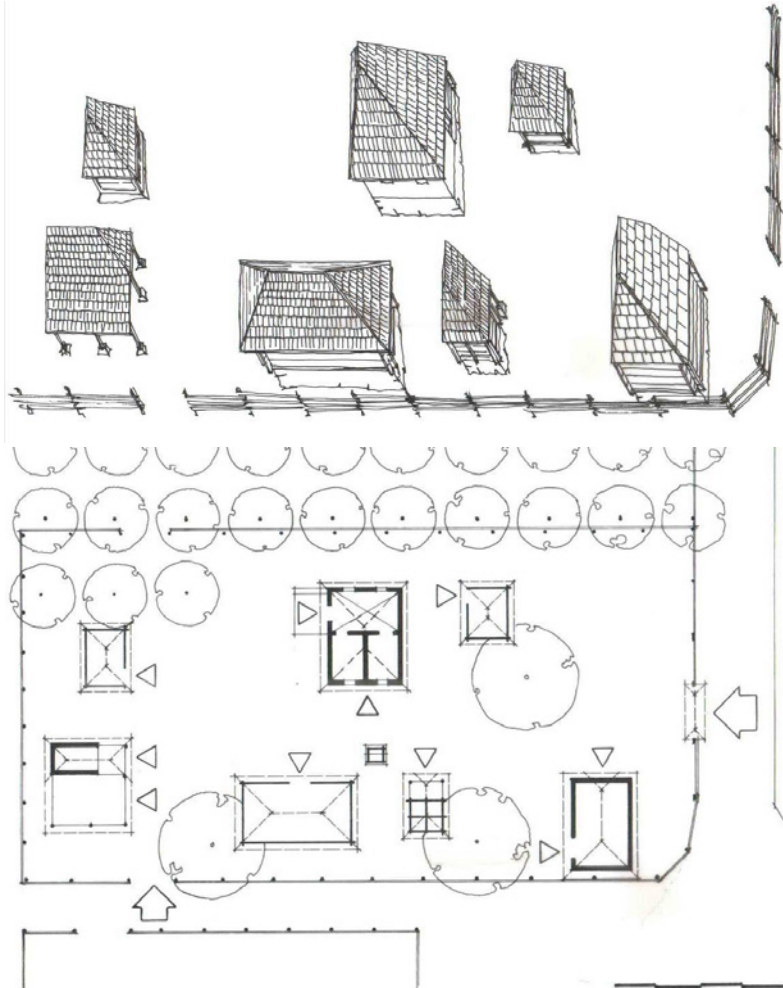
Figure 1. Western Serbia. Area represented by the Museum (dotted line) and the space presented in the paper (continuous line)



Source: Work of author

Village curtilage of the Drina middle course area

The curtilage consists of the *house*, two *vajati* [cottages small house for newly-wed couples], *magaza* [food storage shed], *kačara* [cask shed], *ambar* [granary], *koš za kukuruz* [maize granary], *furuna* [bread oven] and *štala* [stable], enclosed by a fence made of upright stakes and horizontal branches having several gates. [Figure 02]

Figure 2. Curtilage organization layout, extending parallel to the contour lines.

Source: Work of author

House according to the organization, consists of three parts. It contains a “house” and two rooms. The house is built on a basement made of dressed stone bonded with limestone mortar, with a room in it, with the entrance door on the front side and with one window at the middle of each of the lateral sides; the floor is made of rammed earth or of fired bricks laid on their wide side, while the post which supports the beam is rested on the foundation footing made of hewn stone. The walls of the building are constructed as post-and-pan structure, with an infill of adobe covered with mortar on both sides. The double windows consist of two parts, and the doors are divided in panels. The flooring in the rooms is wooden. The ceiling is made of reed covered with limestone mortar. The roof is hipped, covered with regularly laid stone slabs. [Figure 03]

Figure 3. Adobe house on the basement, covered with stone slabs, village of Godečevo

Source: Work of author

Magaza is represented by two types of structures: with or without a basement.

The first example is the building made on the hewn stone foundations, of approximately square layout, with the walls of hewn planks joined at the corners by double notched joints. One of the building sides, owing to its length, includes a post in its middle, over which the wall consisting of wooden planks connected by tenon-and-mortise joint is made. The roof is hipped, and the cover is made of stone slabs. [Figure 04]

The second example has the main structure with a cellar whose wall is made of the hewn stone bonded with limestone mortar. The floor of the cellar is made of rammed earth, and the door has two wings. The walls of the building are made of a wooden frame with a horizontal bracing frame. The walls are infilled with hewn planks connected to the columns by mortise and tenon joints. The door has one wing, and it is positioned on the middle of the facade. The roof is hipped and the roof cover is made of irregularly laid stone slabs. One of the eaves is longer than the others, so as to provide cover for the shelf with the „vrškara“ type beehives. [Figure 05]

Figure 4. Magaza, village of Godečevo.



Source: Work of author

Figure 5. Magaza, village of Godečevo



Source: Work of author

Kačara is a building used to store casks and kegs with brandy, and it is made entirely of timber, on the strip foundations made of hewn stone bonded by limestone mortar. The walls of the building are made of timber, connected at the corners by double notched joints. At the middle of the span, there is a wooden post with a mortise which connects two sides of the structure with hewn planks into one facade plane. The doors have two wings and a wooden lock, and they are located on the middle of the longer façade. The roof is hipped, covered by regularly laid stone slabs. [Figure 06]

Figure 6. Kačara, selo Godečevo



Source: Work of author

Vajat – there are two types of *vajati* in curtilages.

Type one is made in a frame, filled with vertical „*šašovac*“ elements - wooden strips. It is supported on the strips foundations of hewn stone bonded by limestone mortar. The roof is hipped, covered by irregularly laid stone slabs. [Figure 07]

Type two is made of a frame, filled by two kinds of infill: the bottom part is made of hewn horizontal boards, and the upper part (up to the top plate) is filled in by wooden strips. *Vajat* is supported by stone footings. The roof is hipped, covered by shingles. [Figure 08]

Figure 7. *Vajat* with a frame and infill “*na šašovce*” (wooden strips)



Source: Work of author

Figure 8. Vajat with a frame and (“na unizu”) tenon and mortise joints and wooden stips infill (“na šašovce”)



Source: Work of author

Maize granary consists of two horizontal planks, connected with four pairs of posts. It is supported by three hewn stone foundation footings. The roof is covered by shingles. [Figure 09]

Figure 9. Granary with three groups of single posts in Godečevo



Source: Work of author

Granary has four compartments and wide eaves, it is built on four foundation footings at the corners of the building, with a three-plane roof, and a cover of stone slabs. [Figure 10]

Figure 10. Granary covered by stone slabs from Godečevo



Source: Work of author

Bread oven is made of massive timber on a skeleton, on a plinth of hewn stone. The three-plane roof is covered by stone slabs. [Figure 11]

Figure 11. Bread oven from Jaklje



Source: Work of author

Drying shed for plum is made of a masonry skeleton on the foundations of hewn stone in lime mortar. The three-plane roof is covered by stone slabs. [Figure 12]

Figure 12. Drying shed for plum from Godečevo



Source: Work of author

Figure 13. Wattle fence from Godečevo



Source: Work of author

Curtilage fence is made of wattle, the gate has no roof.

Representative village curtilage of Valjevo Podgorina

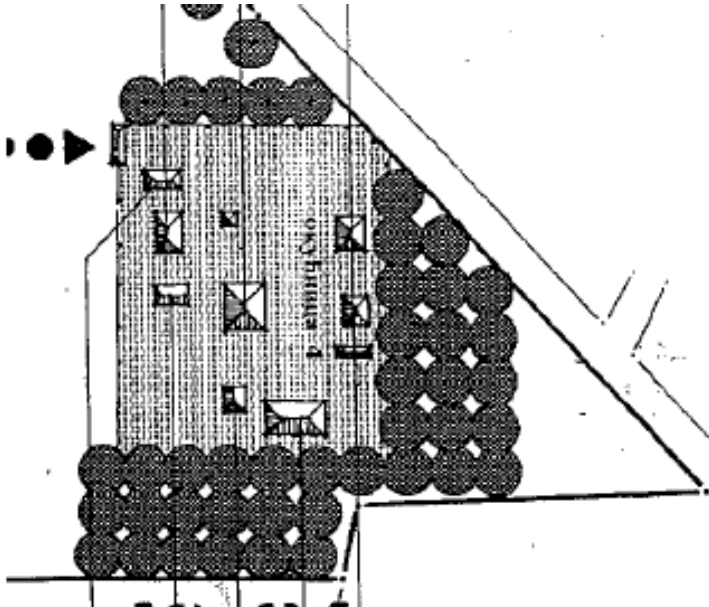
The curtilage consists of: *house*, *guest house*, two *vajat* outbuildings, *magaza*, *kačara*, granary, maize granary and stable. [Figure 14]

House presents two stages in development of housing buildings during 19th and first half of 20th century in this part of Serbia. The first example (half of 19th century) is a two-room house on a high pedestal, which apart from presenting the level of housing, meets all the conditions so as to represent a guest house as well. The second example is the house dating back to the end of 19th century, known as „Bogatinka“.

Example 1 presents the house (half of 19th century) which consists of the high pedestal (made of hewn stone bonded by limestone mortar) which contains a cellar, while the main body of the building consists of two rooms and a porch (made in post-and-pan system, with an adobe infill). The wall is covered with mortar and painted on both sides. The floor in the rooms is made of floorboards and the ceiling of wooden strips („šašovci“). The porch fence is made of wooden strips. The roof is hipped, and the roof cover is S-tile. [Figure 15]

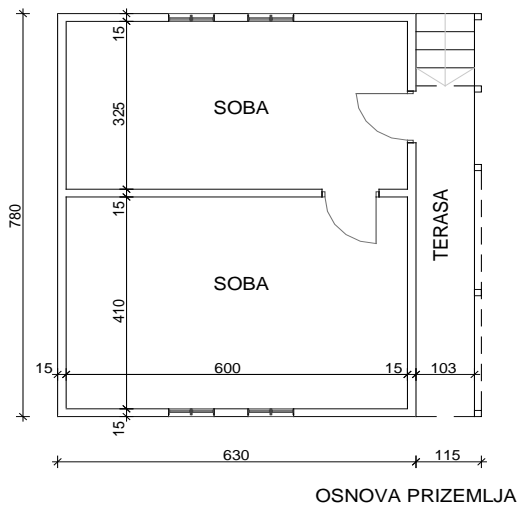
Example 2 presents the house named „Bogatinka“. The house consists of three rooms: a „house“ and two rooms. The foundation is made of hewn stone, the wall is made of fired bricks bonded by limestone mortar, and it is plastered and painted. In the rooms, the floor is made of floorboards, and in the “house” it is made of the bricks laid on their wide side. The ceiling is made of mortar on the reed. The roof is hipped, and the cover is single laid crown tile. [Figure 16]

Figure 14. Curtilage of Valjevo Podgorina villages.



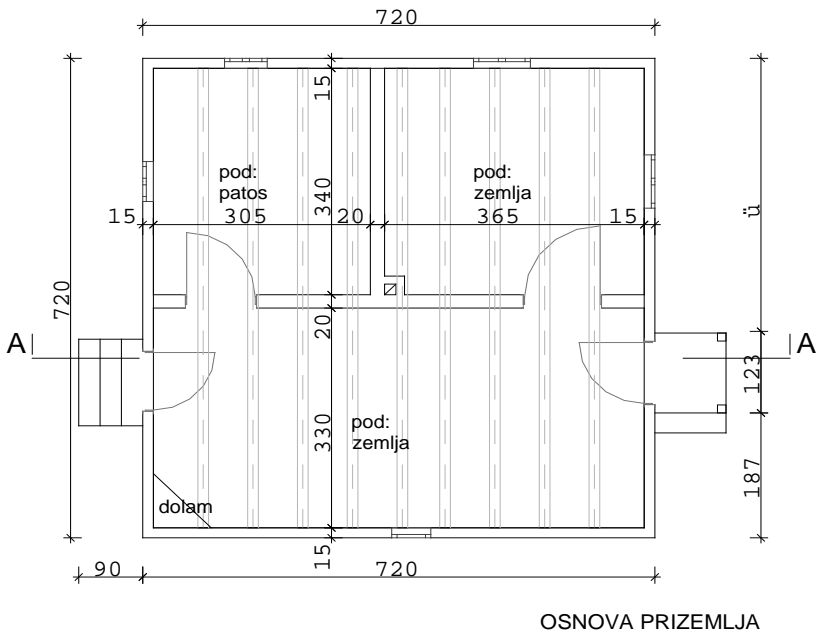
Source: Work of author

Figure 15. The Velimir Urošević's house, village of Virovci, (around 1850)



Source: Work of author

Figure 16. The Stevanović's house, village of Bogatić, (around 1880)



Source: Work of author

Magaza is presented by two types: *magaza* with a porch and without it.

Example 1 consists of one room, on the foundations on hewn stone in a skeleton made of massive timber and with the infill of hewn boards. The roof is hipped, covered by crown tile. [Figure 17]

Example 2 of the building consists of two rooms: closed room and the porch. The main building is made of wooden frame and filled in by horizontally laid hewn boards. The porch fence has a wooden beam on its top, and the parapet is made of vertical wooden strips. The roof is hipped, covered by crown tile [Figure 18]

Figure 17. Magaza, village of Brajkovići.



Source: Work of author

Figure 18. Magaza with a porch, village of Mionica.



Source: Work of author

Kačara is a single room structure built on a sloped terrain. It contains a basement, cask shed at the ground level, and a storage room in the attic. The basement is built of hewn stone bonded by limestone mortar, and the main body of the building is a skeleton with an infill of wooden planks, while the roof has three planes, with a crown tile cover. [Figure 19]

Figure 19. Kačara, village of Brajkovići.



Source: Work of author

Vajat is presented by two types: *vajat* with the building body made of wooden planks joined with double notched joints, and *vajat* with the skeleton frame with an infill of wooden planks joined by tenon-and-mortise joint.

Example 1 is set on the strip foundations made of hewn stone. A bottom beam is laid along the bottom, and above it are the rows of wooden planks connected at the corners by double notched joints, the final row being the top plate. The roof is hipped, and the cover is crown tile. [Figure 20]

Example 2 is a structure made in a skeleton made of massive timber with a wooden plank infill. The roof is hipped, and the cover is S tile. [Figure 21]

Granary has four compartments for grain, with a three-plane roof covered with crown tile. [Figure 22]

Maize granary consists of a building body, supported on three supports made of masonry pieces, made of massive timber with vertical posts and braces. The infill is wattle, with a three-plane roof covered with crown tile.

Ox Cart shed is made in a massive timber frame, supported by foundation footings of hewn stones, with a gable roof covered with crown tile.

The fence of the curtilage is made of wattle, the gate has a gable roof, covered with crown tile.

Figure 20. Vajat made wooden planks joined with double notch joint



Source: Work of author

Figure 21. Vajat made wooden planks joined with tenon-and-mortise joint.



Source: Work of author

Figure 22. Granary with a wide front eave from the village of Godečevo (roof cover replaced)



Source: Work of author

Conclusion

The Museum of vernacular architecture of western Serbia preserves and presents the representative and characteristic specimens of traditional architecture made during 19th and the first half of 20th century. The goal of the museum is to preserve the original samples of architecture which feature the elements of form, workmanship, traces of tools and traces of utilization of structures, etc. The museum consists of four characteristic curtilages and four characteristic entities. In this paper two curtilages representing the area of the middle course of the Drina and Kolubara rivers are analyzed. Each of the curtilages consists of a house, *magaza*, *kačara*, *vajat*, maize granary, granary, and fence. The buildings represent characteristic ways of organization of structures or of the structural design of certain details or of entire buildings. Since the buildings of national architecture vanish on a daily basis, it is necessary to urgently undertake all necessary activities to preserve them, by organizing the Museum.

References

1. Aličić, A. (1985): *Turski katastarski popisi nekih područja zapadne Srbije 15 i 16.v.*, Čačak.
2. Deroko, A. (1964): *Folklorna arhitektura u Jugoslaviji*, Beograd.

3. Deroko, A. (1968): *Narodno neimarstvo I i 2*, Beograd,;
4. Etnografski muzej (2009): *Sve, sve, ali zanat (katalog izložbe)*, Beograd.
5. Kadić, M. (1967): *Starinska seoska kuća u Bosni i Hercegovini*, Sarajevo.
6. Kanić, F. (1985): *Srbija – zemlja i stanovništvo*, Beograd.
7. Karanović, M. (1927): *O tipovima kuća u Bosni*, Glasnik zemljskog muzeja BiH, Sarajevo, no. 39, pp. 207-217.
8. Kojić, B. (1941): *Arhitektura srpskog sela - Šumadija i Pomoravlje*, Beograd.
9. Kojić, B. (1949): *Stara gradska i seoska arhitektura u Srbiji*, Beograd.
10. Kreševljaković, H. (1957): *Hanovi i karavansaraji u Bosni i Hercegovini*, Naučno društvo NR BiH, Sarajevo.
11. Krstanović, B. (2000): *Dinarska dvodelna kuća u oblasti istočne Srbije - prilog za tipologiju narodnog graditeljstva Srbije*, Glasnik Etnografskog instituta SANU, no. 49, pp. 207-216;
12. Krnić, J. (1983): *Dinarska dvodelna kuća - njen značaj i razvoj*, Užički zbornik no. 12, p. 354;
13. Kuzović, D. (1996): *Folk architecture in Kosjerić*, International conference “Architecture and urbanism at the turn of the III millenium“, Faculty of Architecture University of Belgrade, Belgrade, Yugoslavia, Vol. 1, pp. 589-595.
14. Kuzović, D. (1996/1997): *Narodno graditeljstvo na prostoru opštine Kosjerić*, Užički zbornik, no. 25/26, pp. 365-380, Narodni muzej Užice.
15. Kuzović, D. (2012): “*Constructive solutions of cabins on southern slopes of Povlen mountain*”, International conference „Science and higher education in function of sustainable development – SED 2012“, Užice.
16. Kuzović, D. (2012): „*Ambari na južnim padinama planine Povlen*“, u: Glasnik Istorijskog arhiva u Valjevu, Valjevo, no. 46,; pp.108-117, ISSN 0350-9143, UDK 725.36.
17. Kuzović, D. (2012): „*Konstruktivna rešenja korpusa ruralnih objekata na južnim padinama planine Povlen*“, u: Glasnik Etnografskog muzeja u Beogradu, Beograd, vol. 76: pp. 193-213.
18. Kuzović, D. (2013): „*Koševi za kukuruz na južnim padinama planine Povlen*“, u: Glasnik Istorijskog arhiva u Valjevu, Valjevo, br. 47,; str.83-99.
19. Kuzović, D. (2013): „*Magaze i kačare na prostoru južnih padina planine Povlen*“, u: Glasnik Etnografskog muzeja u Beogradu, Beograd, vol. 77: pp. 121-149.
20. Kuzović, D. (2013): „*Prihodi od kulturne baštine*“, u: Glasnik Društva konzervatora Srbije, Beograd, no. 37, pp. 43-46.
21. Kuzović, D. (2013): „*Seoska kuća na južnim padinama planine Povlen*“, vol. 2, no. 143, Zbornik Matice srpske za društvene nauke, Novi Sad.
22. Kuzović, D. (2014): “*Konstruisanje arhitektonskog prostora u tradicionalnoj i savremenoj kulturi na Balkanu - Mikroklimat i prostor*” (koautor), Tradicionalna

- estetska kultura 9: Prostor, Centar za naučnoistraživački rad SANU i Univerziteta u Nišu, Niš.
23. Kuzović, D. (2014): „*Karakteristične etape razvoja seoske okućnice u selima na južnim padinama planine Povlen*“, u: Izgradnja, vol. 68, No. 11-12, pp. 495-500.
24. Kuzović, D. (2015): „*Arhitektonsko nasleđe i tržište*“, u: Kultura Polisa, Institut za evropske studije, Beograd, vol. 26: pp. 119-129, ISSN 1820-4589.
25. Kuzović, D. (2015): „*Prihod od arhitektonske baštine - osnove, karakteristike, potencijali*“, u: Kultura, Zavod za proučavanje kulturnog razvitka Srbije, Beograd, no. 146, pp. 238-249.
26. Kuzović, D., Krsmanović, Ž. (2013): „*Arhitektura seoske kuće u Valjevskoj Kolubari i Podgorini*“, u: Glasnik Etnografskog muzeja u Beogradu, Beograd, vol. 77, pp. 85-121.
27. Kuzović, D., Stojnić, N. (2013): „*Estetika alata osaćanskih neimara*“, Tradicionalna estetska kultura 8: Alat, Centar za naučnoistraživački rad SANU i Univerziteta u Nišu, Niš.
28. Kuzović, D., Stojnić, N. (2015): „*Arhitektura vodenica potočara u centralnom delu Zapadne Srbije i Istone Bosne*“, u: Zbornik Matice srpske za društvene nauke, no. 150: pp. 773-801.
29. Kuzović, D., Stojnić, N. (2015): „*Letnji stanovi stočara na planini Povlen*“, Zbornik Matice srpske za društvene nauke, No. 150, pp. 129-156.
30. Obradović, S. (1858): *Opisanije okruga užičkog*, Beograd.
31. Pavlović, Lj. (1925): *Užička Crna Gora*, Beograd,
32. Pavlović, Lj. (1930): *Sokolska nahija*, Beograd.
33. Pantelić, D. (1936): *Vojno-geografski opisi Srbije pred Kočinu krajinu od 1783. i 1784. god*, Beograd.
34. Pešić, B. (1988): *Tradicionalna seoska kuća opštine Raška*, Glasnik DKS 12, p. 112-113.
35. Pešić, B. (1991): *O proporcijama dinarske kuće*, Glasnik DKS 15, p. 109-112.
36. Soldo, Š. (1932): *Tipovi kuća i zgrada u pređašnjoj Bosni i Hercegovini*, Beograd.
37. Findrik, R. (1995): *Narodno neimarstvo*, Sirogojno.
38. Findrik, R. (1998): *Dinarska brvnara*, Sirogojno.
39. Findrik, R. (1999): *Vajati, znamenja mladosti*, Sirogojno.
40. Cvijić, J. (1931): *Balkansko poluostrvo*, Beograd.

AGRICULTURAL RESOURCES AND DEVELOPMENT PRIORITIES OF THE MUNICIPALITY OF STARA PAZOVA¹

Branko Mihailović², Zoran Simonović³, Nikola Ćurčić⁴

Abstract

This paper examines the agricultural potentials of Stara Pazova, and consequently defines development priorities in this area. The aim at the research is to assess the real possibilities for improvement on agriculture Municipality. The analysis is focused on: knowledge transfer and innovation, agriculture technical equipment, warehouse and finishing capacities in agriculture, processing of agricultural products and the vision and development priorities over agriculture Municipality. The research results show that the improvement to the competitiveness of the agricultural sector of Stara Pazova requires the implementation of adequate policy measures and projects related to the improvement to human resources, higher level of processing of agricultural and food products, as well as better agricultural technical equipment agricultural producers. Activities in this area include primarily higher correlation science and practice across the reorganized agricultural station, extension services, home service, agricultural cooperatives and other associations of farmers; development and implementation of new knowledge and skills of farmers through advice, training, seminars, courses; support young farmers in the modernization of farms. All projects in this field must be based on adequate state support and coordinated efforts of the public and private sectors.

Keywords: *agriculture, knowledge transfer, storage and finishing capacity, development priorities.*

JEL: *Q01, Q12, Q15.*

- 1 Paper is a part of research within the project no. III 46006 - Sustainable agriculture and rural development in the function of accomplishing strategic objectives of the Republic of Serbia in the Danube region, financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia. Project period: 2011-2017.
- 2 Branko Mihailović Ph.D., Senior Research Associate, Institute of Agricultural Economics, Volgina Street no. 15, 11060 Belgrade, Serbia, Phone: +381 11 697 28 58, E-mail: brankomih@neobee.net.
- 3 Zoran Simonović Ph.D., Scientific Associate, Institute of Agricultural Economics, Volgina Street no. 15, 11060 Belgrade, Serbia, Phone: +381 11 697 28 58, E-mail: zoki@medianis.net.
- 4 Nikola Ćurčić M.A., Teaching assistant, University Union, „Nikola Tesla“, Belgrade, Faculty of Management, Njegoševa 1a, 21205, Sremski Karlovci, Serbia, Phone: +381 21 21 550 45, nikolavcurcic@yahoo.com.

Introduction

Inadequate economic development of Serbia is determined by many factors, among which the following stand out: unfavorable structure of the economy, the loss of traditional markets, financial indiscipline and lack of investment in existing and new enterprises. According to experts on the World Bank need to be 40% of the national income created in new sectors in order to annul the negative effects of the transition shock. However, even after the year 2000 in Serbia established a growing trend of investment, they are insufficient for the transformation of the 'factors led' 'to' 'investments trailed' economy characterized by sustainable development (Porter, 1990). Consequently, the current growth is not sustainable without a significant increase in investment.

Insufficient investment in new production programs and represents a limiting factor on export growth, due to the absence of qualitative factors of competitiveness. Production of agricultural market potential and its place in the national economy opens significant opportunities for industry revitalization of agricultural inputs (Milanović, Stevanovic, Dimitrijević, 2016). Accordingly, the crucial issue of Serbia in the coming period is the sustainable economic growth, competitiveness and growth of enterprises and the growth of exports. Completion of market institutions, in particular the development of financial markets, infrastructure, efficient state administration and judiciary, reducing corruption - is necessary preconditions for the development of a stimulating business environment in Serbia. The great potential for agricultural -industrial complex about Serbia, could be a very good basis of the efficient development of agricultural -industry and increasing competitiveness in the markets of EU, Russia and many other countries, bearing in mind that the total demand for organic healthy food to grow rapidly in the coming period (Savić, Bošković, Micic, 2016). Unfortunately, the Serbian-dominated agrarian exports primary agricultural products and products with a low degree of added value. According to the structure of exports of agriculture was dominated by fruits and vegetables with 26.66%, followed by cereals from 22.27% to 8.78% tobacco and drinks with 6.60% (Serbian Chamber of Commerce, 2016). Consequently, municipalities in Serbia in their development strategies should be based on innovation, regional recognition and investment in products of higher level of added value.

The territory of the municipality of Stara Pazova covers an area in the southern part of the Pannonia Plain, and occupies the eastern Srem. The municipality is located in the plain area, a plot of the territory of the extraordinary fertility. Altitude is approximately 80 meters. Stara Pazova no rivers in their area, there are only artificially dug channels. The nearest river is the Danube, which is 10 km away from Stara Pazova, runs through the Stari Banovce. Otherwise river Danube flows through eastern border of the municipality in the length of 24 km. The Municipality of Stara Pazova is situated in the southeastern part of Srem, in the Autonomous Province of Vojvodina, which occupies the northern part of Serbia. A belongs Srem authorities (City Sremska Mitrovica and the Municipality of Sid, Indjija, Irig, Ruma, Stara Pazova and Pećinci). In the municipality of Stara Pazova live 65,792 inhabitants, of which live in the town of 18,602 (59.30%) and in the suburbs 47.190 inhabitants (40, 70%). The population density of

the municipality of Stara Pazova in 2011 was 200 people per square kilometer (Rural Development Strategy of the Municipality of Stara Pazova for the period 2015 to 2025 years). The demographic picture points of the necessity of taking appropriate measures and strategies to adapt to the development of rural areas of the current demographic situation (Nikolić, 2006).

The Regional Plan R. Serbia, the municipality of Stara Pazova in the wider regional context should be connected with the City of Belgrade and other municipalities in the region (Pećinci, Ruma, Stara Pazova, Pancevo, Smederevo, Smederevska Palanka, Ub and Lajkovac), and form into the metropolitan basis, with City of Novi Sad over Indije (Law on the spatial plan of the Republic of Serbia from 2010 to 2020). In this way, this area through the instrumentalists of their position and capacity to become one of the leading metropolitan s in this part of Europe, thanks to their institutional and human resource capacity, as well as the economic and cultural potential (Law on the Spatial Plan of the Republic of Serbia from 2010 to 2020).

Methodology and data sources

In order to implement the research task will use all available sources of information:

- Official national statistics, i.e. the data onto the Republic Institute for Statistics;
- National and municipal strategies and development documents in the specific field;
- Materials Serbian Chamber of Commerce and other local institutions and organizations;
- Studies of domestic and foreign authors in the subject area;
- Research by the Institute of Agricultural Economics and his associates realized in the previous period.

The realization of the research task, which relates to the assessment of agricultural potential and defining development priorities to the municipality of Stara Pazova, will be used to analyze secondary data (primarily from the 2012 Census of Agriculture), the spatial analysis of relevant variables as well as research based on focus groups composed of actors interested in agricultural municipality of Stara Pazova. By combining the aforementioned methods of research can be obtained as reliable answers to key questions that arise from the context of the analysis of agricultural resources and development priorities of the municipality of Stara Pazova.

Results with Discussion

The Municipality of Stara Pazova has one of the longest traditions when it comes to the development of small and medium-sized enterprises in Serbia. In the municipality are now about five hundred small and medium-sized enterprises. Also in the municipality is located in and around two thousand and six hundred craft shops most of which are located in Stara Pazova and Nova Pazova (Rural Development Strategy of the Municipality of Stara Pazova for the period 2015 to 2025 years). Since the industry

is represented by wood-industrial Company, the factory metals products factory machinery, brick plant and others. In recent years, municipalities have been very active in terms of industrialization and the development of new industrial zones, attracting new investors. When it comes to the distribution of industries in residential areas, almost 30% is located in Stara Pazova, 25% in Nova Pazova, 8% and 6% in Banovci. Stari Banovci, while 22% located outside the territory of the village. Belegiš, Vojka, and Krnješevci Surduk are hosts for 9% of enterprises (Rural Development Strategy of the Municipality of Stara Pazova for the period 2015 to 2025 years).

Agriculture contributes to the development of the local economy. According to the same source, in the municipality is about 29.982 hectares of arable land, of which approximately 22.000 hectares are privately owned. Farming is the main occupation in rural areas of the municipality. Analysis of the economic structure of the municipality shows that one third of the total earnings from the manufacturing industry, while agriculture, trade and the service sector contributing each with 25%. Other branches provide less than 10% of total earnings. When it comes to investments, the Municipality of Stara Pazova invested the most in the manufacturing industry, commerce and agriculture, while investment in the construction of infrastructure projects for water management in 2012 amounted to only 1%. In terms of the structure of the industry represented in the municipality of Stara Pazova, agriculture deals with 22.9% of the total population. Other most represented industries are: industry 27.3% and services 49.8%. Income that municipalities Stara Pazova realized from agriculture is 22.4%. (The strategy of sustainable development of the municipality to Stara Pazova from 2010 to 2020).

Transfer of knowledge and innovation. Company with developed agriculture and efficient institutions, timely noted the importance of knowledge as an important factor of modernization of agricultural production and so far are relatively successfully enabled its transfer of the end users (Petrović, Ćikić, 2005). However, current systems of knowledge transfer and innovation in Serbia are insufficiently effective and do not follow sufficiently accelerated technical and technological changes. However, the existing scientific and educational institutions in the field of agriculture have relatively quality staff, who scored a number of internationally recognized and acknowledged results of new varieties, breeds and strains, scientific papers and technical solutions (Republic of Serbia IPARD program 2014-2020). In the agribusiness sector education and extension are important factors modernization business. In support of this statement must be given a confirmed fact that investment in the extension (and agricultural research) yields to 40% of the average wage rate, which is “much more than other investments in agricultural development” (Van den Ban, Hawkins, 1996). The affirmation of the knowledge economy requires a greater investment in basic research. However, long-term crisis of the domestic economy has led to a reduction of accumulative capacity of enterprises in Srem authorities and Stara Pazova. In such circumstances, there is no critical mass of resources needed for organizing the research process, as well as the willingness to take financial risks that these processes nose. In Serbia, the transfer of

knowledge and innovation in the field of agriculture implemented through the formal education system, through various types of training organized by educational and research institutions and organizations, IPRS, a private business companies, project units, the media, etc. (The Strategy of Agriculture and Rural Development Serbia for the period 2014-2020). At the same time, it should be noted that the current structures and system of knowledge transfer are not effective enough and fail to adequately meet the needs of dynamic technical and technological restructuring of the agricultural sector (Agriculture and Rural Development of the Republic of Serbia for the period 2014-2020).

The strategic objective in the field of economy of Stara Pazova, the development of the social market economy conditions and instrument of sustainable development of local communities, and smart, sustainable and inclusive growth of the local community (Revision of the sustainable development strategy of Stara Pazova, 2015). The first priority to the achievement of this strategic objective: Development of a smart economy based on knowledge, innovation, entrepreneurship and the information society (Revision of the sustainable development strategy of Stara Pazova, 2015). In the area of agriculture and rural development knowledge transfer and innovation is realized through:

- Agricultural Extension Service “Sremska Mitrovica” Ltd. Sremska Mitrovica;
- Department of Agriculture, Forestry and Water Management of Municipal Administration Stara Pazova, which performs administrative and professional tasks in the field of Agriculture, Water and Forestry. The department makes the connection between producers, agricultural cooperatives and associations, regional agricultural departments and the ministry;
- Economic - Trade School “Vuk Karadzic” and “Technical School” in Stara Pazova.

Agricultural Extension Service “Sremska Mitrovica” Ltd. Sremska Mitrovica covers four municipalities: Sremska Mitrovica, Sid, Pećinci, and Stara Pazova with 69 settlements on 153,000 ha of arable land (www.polj.savetodavstvo.vojvodina.gov.rs). Sowing structure of municipalities is similar to the most commonly grown cereals, corn, oil crops, forage crops, sugar beet, tobacco and vegetables. Fruit and vine becomes more and more interesting to the slopes of the part of the territory covered by our professional service. The specificity of the production of vegetables in the open and indoors was particularly evident in the Mačva part in the municipalities Sremska Mitrovica and Pecinci because of the tradition, the specific soil conditions and proximity to major cities. According to the Agricultural Census data onto 2012, the number of farms that used the services of advisory services in Stara Pazova was 638 (Census of Agriculture 2012 Other information about the farm, the level of settlements). This is only 17.4% of the total number of farms in Stara Pazova (3,664), which is at the average level of the Republic of Serbia (only 17% of farms used the services of advisory services). Observed by towns, farms that are most used services advisory services were recorded in the following settlements: Vojka and Golubinci (at 148), Stara Pazova (80), Surduk

(76) and Belegiš (66). Probably would transfer knowledge and innovation would be better if the farmers used computers and the Internet. In 2012 Census of Agriculture data shows that in the period 2011-2012 only 116 farms benefit of computers, which is only 3.2% of the total number of farms in Stara Pazova (Census of Agriculture 2012 other information about the farm, the level of settlements). For program activity, “incentives for agricultural production”, in 2016 the budget of the municipality of Stara Pazova planned amount of 5.5 million dinars, of which (Official Gazette of the Srem Municipalities “No 35/15):

- 5,000,000 dinars is allocated for subsidies in agriculture and education authorities. In addition to educational character and adoption of new technologies in production, this incentive promotes the spirit of competition in the production, showing the achievements of manufacturers and the results achieved in agriculture. The beneficiaries of this measure are rural local communities, citizens’ associations, entrepreneurs and legal entities for the provision of advisory and other services, scientific and technical institutions.
- 500,000 dinars is allocated for the exhibition event in the field of agriculture. These funds are intended for the organization of fairs, exhibitions, events, etc.

In terms of further enhancing knowledge transfer and innovation in agriculture and rural development in Stara Pazova, it is important to bear in mind the following:

- Define larger amounts in the budget of the city of Stara Pazova fair event in the field of agriculture;
- Improving knowledge transfer and innovation in agriculture Stara Pazova constitution requires market-oriented companies with highly educated staff and the application of modern technologies of agricultural production;
- It is necessary to stimulate the partnership between the public and private sectors, as well as inter-sectional mobility of researchers, professors and consultants;
- Transfer of knowledge and information activities should be supported through various workshops, conferences, demonstration activities, information activities and short-term exchange programs and visits to farms (EU Regulation 1305/2013).

Agricultural-technical equipment’s. In consideration of economic and social factors are important to the development of family farms is of particular importance is the analysis of their production capacities (Maletić, Popović, 2016). Unfortunately, in Serbia in the last decades has been a differentiation and stratification of the rural population, which is the main carrier of agricultural production (Agricultural Census 2012 Agricultural machinery, equipment and facilities in the Republic of Serbia). The study showed that experienced producers who have greater economic power, which allows them to monitor new technological developments, both in terms of the use of new equipment, as well as the application of new technologies. In the second group are those poorer without sufficient funds of a serious change, and there is a large majority of Serbia. According to data onto the 2012 Census of Agriculture (Volume 1) in Stara Pazova registered: 314 single-axle tractor; 2,331 two-axle tractors and 132

harvesters. When connecting machines registered the following condition are: 381 picker, 1,965 plows, 380 disc harrows, 1,128 harrows, 922 preparing combination, 56 rot tiller, 975 Mineral spreaders, 146 manure spreaders, 658 seeder, 1,005 sprayer, 2,296 trailers and 316 machines. Every farm in Stara Pazova on average has 3.55 units of auxiliary machines and equipment (3.9 average for the Republic of Serbia), which is slightly less favorable than the average in the Republic of Serbia. Spatial distribution of agricultural machinery by settlements (*Table 1*) showed that the settlement with the largest agricultural engineering equipment at the following: Golubinci, Vojka and Belegiš. At the same time, the lowest agricultural technical equipment is: Novi Sad, Nova Pazova and Krnješevci. For the village, Surduk and Stari Banovci can be said to have average agricultural technical equipment, with a certain oscillation number of agricultural machinery by settlements.

Table 1. Agriculture - the number for the level of regions and the city of Stara Pazova, data by settlements

Area, town, village	Axle tractors	Two-axle tractors	Universal grain harvesters	Propelled Forage harvesters	Other harvesters
Srem area	1.615	19.404	1.063	244	56
Stara Pazova	314	2.331	93	33	6
Belegiš	32	283	10	8	P
Vojka	30	429	25	10	P
Golubinci	46	495	12	5	P
Krnješevci	4	120	4	4	P
Nova Pazova	29	58	P	P	P
Novi Banovci	18	56	P	P	P
Stara Pazova	109	470	19	P	P
Stari Banovci	27	236	9	P	P
Surduk	19	184	12	P	P

Source: Census of Agriculture 2012, Agricultural machinery, the level of the village, Republic Statistical Office, Republic of Serbia,

http://popispoljoprivrede.stat.rs/?page_id=6221. Join Date 10.12.2015.

Note: In accordance with the Law on Official Statistics and the protection of personal data, some data onto the tables for settlements of three or less than three holdings are hidden or displayed with the letter "P".

As for the age of agricultural machinery, it is important to emphasize that on Stara Pazova 95.8% corn picker older than 10 years and is technically obsolete and should be purchased new. The data presented in Table 2 indicate that in some villages such as Stari Banovci and Novi Sad, all the maize pickers are older than 10 years.

Table 2. Picking corn - the number by settlements

Area, town, village	Pickers corn			
	In total	of which: older than 10 years	Own number	not owned
Area, town, village	2.698	2.597	2.448	8.671
Stara Pazova	381	365	330	918
Belegiš	41	36	38	59
Vojka	56	55	52	227
Golubinci	45	44	36	128
Krnješevci	19	15	19	41
Nova Pazova	8	7	6	119
Novi Banovci	5	5	5	62
Stara Pazova	124	121	103	183
Stari Banovci	47	47	38	65
Surduk	36	35	33	34

Source: Census of Agriculture 2012, Agricultural machinery, the level of the village, Republic Statistical Office, Republic of Serbia.

Note: In accordance with the Law on Official Statistics and the protection of personal data, some data in the tables for settlements with three or less than three holdings are hidden or displayed with the letter "P".

Relevant companies to produce and sell agricultural machinery in Stara Pazova are (<http://mtt.gov.rs/informacije/baza-trgovackih-preduzeca-i-preduzetnika>): POLJO ELIT- Vojka, entrepreneur, machinery for agriculture; BELI BREG- Vojka, machinery for agriculture and trade; BOROINEKS Company for trade and services doo, Stara Pazova; Wholesale of agricultural machinery, equipment and supplies; Company for Production, Trade and Services AGRO-LINE DOO, Golubinci; Wholesale of agricultural machinery, equipment and supplies; Company for production, trade and services AGROART DOO, Stara Pazova; Wholesale of agricultural machinery, equipment and supplies; Economic Society for production and domestic and foreign trade DEMETRA-LANCI DOO, Stara Pazova. Wholesale trade of agricultural machinery, equipment and supplies.

Problems that farmers in Stara Pazova are in the field of agricultural machinery are as follows: 1) Certain types of existing machine park (maize pickers) are technologically obsolete; 2) Unfavorable bank loans for the purchase of new machinery and 3) Insufficient cooperation of farmers in the area use the common machinery (undeveloped machinery rings), which would cost mechanization could significantly decrease and increase economic effects. Farmers in Stara Pazova have to pay more attention to analyzing the possibility of creating machinery rings. Machinery rings to give their members a number of benefits and allow coming to the separation of farmers in two basic categories: (a) those who receive the service and (b) those that provide these services. Service providers are highly specialized only in specific operations, so that the quality of services at the highest level, and the services provided in this way with developed countries are not taxed and are considered the agreed production. At the same time, the

maximum exploitation of mechanization, so the price of the services provided is lower. On the other hand, recipients can devote to other problems of its agricultural production (inputs, product placement) and not be burdened with their “unused” equipment. By creating machinery rings to achieve a more efficient agricultural production due to more rational use of existing resources, while simultaneously fulfilled to economies of scale and economies of scale.

Storage and finishing capacities for agriculture. Data from the Agricultural Census 2012 (Volume 2) show that in Stara Pazova in agricultural holdings recorded the following number and capacity of storage and additional processing capacity:

- Goals for corn - 2,817 (own capacities: 129,451 m³; used capacities: 53,237 m³);
- The granaries - 271 (own capacities: 9,602 m³ capacities used: 5,285 m³);
- Silos - 37 (own capacities: 26,277 t; used capacities: 27,113 t);
- Dryers - 217 (own capacities: 24.112m³; used capacities: 27,109 m³);
- Facilities for silage - 30 (own capacities: 5,544 m³ capacities used: 4,203 m³);
- Facilities for storing agricultural machinery and equipment - 1,627 (own capacities: 105,202 m²; used capacities: 94.903 m²);
- Refrigerators - 14 (own capacities 5 276 m³ capacities used: 5 070 m³);
- Facilities for storing cattle - 1,031 (own capacities: 11.730, seats, used capacities: 4,664, seats);
- Facilities for the accommodation of pigs - 4,827 (own capacities: 93,503, seats, used capacities of 50,229, the number of seats);
- Facilities for housing laying hens - 1,911 (own capacities: 170,181, seats, used capacities: 95,333, seats);
- Facilities to accommodate other livestock - 738 (own capacities: 19,067, seats, used capacities: 23,926, seats);
- Machine calibration, vacuum and packaging - 3 (own: 1, others: 2).

Cold storage for fresh and frozen fruits. The data presented in Table 3 show that even 71.65% of the total capacity of cold storage for agricultural holdings registered of the inner circle of Stara Pazova (3,780 m³). Then follow settlements: Golubinci (608 m³), Stari Banovci (528 m³), Surduk (300 m³) and Nova Pazova (60 m³). The resorts Belegiš, Vojka, Krnješevci Novi Banovci and are not recorded capacity refrigerator.

Table 3. Refrigerators in Srem the area of and Stara Pazova, 2012th

Area, town, village	The number of households that own this property	Number of objects	Overall capacity	Capacity used	The number of households that use only the alien objects	The number of households that use objects in other purposes
Srem area	113	147	135.809	65.528	17	16
Stara Pazova	11	14	5.276	P	P	2
Belegiš	P	P	0	P	P	0
Vojka	P	P	0	P	P	0
Golubinci	4	4	608	P	P	0
Krnješevci	P	P	0	P	P	0
Nova Pazova	P	P	60	P	P	0
Novi Banovci	P	P	0	P	P	0
Stara Pazova	P	P	3.780	P	P	1
Stari Banovci	4	4	528	P	P	1
Surduk	P	P	300	P	P	0

Source: Census of Agriculture 2012, Agricultural objects, the level of the village, Republic Statistical Office, Republic of Serbia.

Note: In accordance with the Law on Official Statistics and the protection of personal data, some data in the tables for settlements with three or less than three holdings are hidden or displayed with the letter "P".

Silos; In Stara Pazova registered 18 farms that have silos. The data presented in Table 4 show that the largest capacity silos have the following settlements: Stara Pazova (20,542 t), Belegiš (2,060 t), Golubinci (1,515 t) and Vojka (1,200 t).

Table 4. Silos in Srem the area of and Stara Pazova, 2012th

Area, town, village	The number of households that own this property	Number of objects	Overall capacity	Capacity used	The number of households that use only the alien objects	The number of households that use objects in other purposes
Srem area	276	615	217.226	179.341	1.424	171
Stara Pazova	18	37	26.277	27.113	72	5
Belegiš	P	P	2.060	4.320	67	5
Vojka	P	P	1.200	P	P	0
Golubinci	5	11	1.515	P	P	0
Krnješevci	P	P	0	P	P	0
Nova Pazova	P	P	0	P	P	0
Novi Banovci	P	P	0	P	P	0
Stara Pazova	4	7	20.542	P	P	0
Stari Banovci	P	P	650	P	P	0
Surduk	P	P	310	P	P	0

Source: Census of Agriculture 2012, Agricultural objects, the level of the village, Republic Statistical Office, Republic of Serbia.

Note: In accordance with the Law on Official Statistics and the protection of personal data, some data into the tables for settlements of three or less than three holdings are hidden or displayed with the letter "P".

Average capacity silos on farms are 1459.83 t. On the other hand, the settlement Novi Sad, Nova Pazova and Krnješevci have the capacity silo. Companies that own silos are: Napredak AD Stara Pazova (Delta Agrar; 20,000 t); ZZ agricultural prom, Stara

Pazova (17,000 t), Lazic agricultural -commerce, Golubinci (20,000 t); Poljoagar, Vojka (17,000 t).

The granaries; According to the data given in Table 5 of 226 farms in Stara Pazova possesses barns. Maximum total capacity is located in the village Vojka (2,755 m³), followed by Stara Pazova (1,476 m³), Krnješevci (1,287 m³) and Golubinci (1,181 m³). Average capacity per farm, which has owned these facilities amounts to 42.5 m³.

Table 5. The granaries in Srem the area of and Stara Pazova, 2012th

Area, town, village	The number of households that own this property	Number of objects	Overall capacity	Capacity used	The number of households that use only the alien objects	The number of households that use objects in other purposes
Srem area	2.584	2.793	110.022	52.284	34	211
Stara Pazova	226	271	9.602	5.285	6	19
Belegiš	33	41	1.162	699	4	4
Vojka	72	94	2.755	P	P	1
Golubinci	31	35	1.181	P	P	7
Krnješevci	25	35	1.287	P	P	0
Nova Pazova	4	4	102	P	P	1
Novi Banovci	P	P	105	P	P	1
Stara Pazova	32	33	1.476	P	P	3
Stari Banovci	17	17	707	P	P	1
Surduk	9	9	827	P	P	1

Source: Census of Agriculture 2012, Agricultural objects, the level of the village, Republic Statistical Office, Republic of Serbia.

Note: In accordance with the Law on Official Statistics and the protection of personal data, some data onto the tables for settlements of three or less than three holdings are hidden or displayed with the letter "P".

Dryers are recorded at 70 farms in Stara Pazova. According to the Census of Agriculture 2012 (Agricultural facilities, the level of settlements) facilities dominantly dryer are located in Stara Pazova (12.767 m³) and Golubincima (11,034 m³). In other settlements are recorded smaller capacity driers: Belegiš (144 m³), Stari Banovci (71 m³) Vojka (44 m³), Nova Pazova (38 m³) and Krnješevci (14 m³). Average continuous dryers on farms are 344.5 m³. In Golubincima has much drier tobacco because tobacco production is largely present in this village. It used to be of vegetables. Dryers, privately owned, bother, because the population is spread odors from tobacco. Also, consume a lot of gas to work. They were found geothermal water that could be used to heat the kilns one that would be used for all tobacco (Report of the working group meeting Stara Pazova, 22.12.2015). Facilities for silage are listed at 25 farms in Stara Pazova (Census of Agriculture 2012, Agricultural objects, the level of the village). Average capacity of the farms that have this facility is 221.8 m³. Maximum total capacity of facilities for silage located in Belegišu (1,464 m³), followed by: Golubinci (1,447 m³), Stara Pazova (1,241 m³), Krnješevci (749 m³).

Machine calibration, a vacuum packaging and in Stara Pazova has a total of 3 (Census of Agriculture 2012, Agricultural machinery, the level of the village), while all younger

than 10 years, and it is evident that the existing fleet technology is in a better position than the average in the Republic of Serbia. The capacity of machine calibration, vacuum and packaging is located in settlements Belegiš and Stara Pazova.

Processing of agricultural products; the complex about primary processing of agricultural products allowed the construction of facilities for primary processing of agricultural products of plant and animal origin in accordance with traditional technology in the climate: fruits, vegetables, herbs, milk, meat, grain sorghum, cane, wool (Spatial plan of Stara Pazova to 2025). Installations for processing agricultural products can be built with agricultural facilities, in order to complete the production cycle (Spatial plan of Stara Pazova to 2025). Some of the important agricultural companies in Stara Pazova were Žitopromet-Mlinpek D.O.O and Panonija-Marketing LLC, which is engaged in the manufacture of grain mill products. They also have a mill for the production of flour (<http://mtt.gov.rs/informacije/baza-trgovackih-preduzeca-i-preduzetnika>). Company Miljković V. Silosi DOO is also important, but not more engaged in processing trade of grain, unmanufactured tobacco, seeds and animal feeds. The main limiting factors of greater and more effective involvement of the food industry in the international market are the following: 1) Poor range of food products in relation to the offer in the developed world; 2) In the structure of export of Serbian agriculture is dominated by products of primary agricultural production, while higher processing products account for only about a fifth of exports (Jeremić, Milojević, Terzić, 2016); 3) Fluctuations in market quality products, either due to lack of standards, either because of non-compliance and poor control of applicable standards; 4) The lack of long-term and solid contractual relations or proprietary connection between the food industry and manufacturers of raw materials (primary agricultural production). The products are increasingly the result of cultural, social and political dimensions. “These trends in the markets, driven by economic, social and cultural changes, encourage new forms of production and business models in developed processing industries, where the added value is created through the services, experience and stories related to the products, and not through the physical process of production. (Manniche, Test, 2010).

Development priorities; Using comparative advantages and tradition, which are the municipality of Stara Pazova in the field of agricultural production, can go in the direction of the transformation of local agriculture, as well as all entities involved in economic activity in this sector of the economy. These processes of transformation must go in the direction of the review of existing and development of new business and marketing strategies of farmers, based on developmental skills and strengths of the producers, but also on knowledge of consumer preferences, new technologies, marketing approaches and other postulates of modern market economy. In such circumstances, consideration of market access, i.e. constant and intensive changes in the market, is the first and basic assumption on which it would be rational to formulate new marketing strategies, other than just by competing ingenuity, technology and quality. Agricultural companies have had to develop a new concept of management and marketing, in order on the basis of new market and economic conditions, could develop a profitable business strategy

and ensuring growth of production and sales (Cvijanovic, Trandafilović, Imamovic, 2013). Storage and finishing facilities in Stara Pazova exist, but must be done in improving these capacities: continued construction, purchase, expansion and respect for environmental standards. Also, it is necessary to work on the construction of a collective urban large distribution center, which would be a public-private partnership, the trademark uniform and packaging of agricultural products. Bearing in mind the agricultural potentials for the municipality of Stara Pazova, development priorities are as follows: 1) Growth of agricultural production and competitiveness while adapting to the demands of the domestic and foreign market, based on the application of modern, high tech, appreciation of veterinary and phytosanitar,s standards, environmental standards and animal welfare; 2) The development of the sector of agricultural products through the application of knowledge and innovation, respect for the standards of food quality and safety, and respect for the principles of sustainable development; 3) Encouraging mergers and strengthening local entrepreneurial initiatives population of the production and processing of agricultural products, with the aim of creating a stable and high income farmers (income that is in line with other parts of the economy), which provides a satisfactory standard of living; 4) Sustainable management of natural resources and environmental protection in rural and peri-urban settlements; 5) The preservation and protection for biodiversity in rural and peri-urban areas; 6) The preservation of genetic resources in agriculture and protection of biodiversity; 7) Improving the quality of life in rural and peri-urban settlements of investment in physical and social infrastructure and the development of services, while preserving the cultural and natural heritage; 8) The creation of new jobs of rural and peri-urban settlements and the growth of living standards of the population of these settlements (Rural Development Strategy of the Municipality of Stara Pazova for the period 2015 to 2025 years).

In the coming period the emphasis must be placed on the development of the food industry that is focused on meeting the needs and desires for consumers, with an emphasis on innovation, quality, high level of food hygiene and food safety standards. There are great opportunities and potentials of the domestic food industry in the production of safe food of high quality, which is very interested in foreign markets, which will include the introduction to ISO standards and HACCP quality systems in all processing capacities. Development policy of the food industry surely will follow global economic trends (such as concentration capacity and capital, the introduction of highly sophisticated technology), and in this process the role of the state is important, both from the standpoint of security and protection of competition and control abuse monopoly position, and the aspect fiscal and investment support to small and medium-sized processing capacities, especially in rural areas.

Conclusion

Development of rural areas is closely linked to the development of agriculture and processing of agricultural products, and agricultural production is traditionally the most important sector of the rural economy and the main source of income for the rural population. In accordance with that necessary investments in the development of micro-enterprises in the field of processing of agricultural products, as well as raising the value of products obtaining geographical indications. By investing in the said operations would improve the competitiveness of agricultural holdings in the market, increasing revenue holdings to improve their economic status, which would enable a better quality of life in rural areas of the municipality of Stara Pazova and reducing the rate of depopulation of rural areas. Conditions that contribute to the employment of the rural population are boosting entrepreneurship and the development of micro-enterprises. The vision of agriculture involves the development of propulsion and competitive agriculture made up of commercial and family farms engaged exclusively in agriculture or engaged in agriculture in terms of additional revenue sources. However, the desired future of this area will not happen by itself or because someone eager. The desired future and the achievement of the strategic objectives of Stara Pazova in agriculture require immediate action. Future economic vitality of local communities to a lesser extent is a function of available resources and geographical position, a strong leadership and a more effective strategy.

Literature

1. Analiza poljoprivrede i prehrambene industrije Srbije u 2015. godini, Udruženje za poljoprivredu, prehrambenu industriju, šumarstvo i vodoprivredu, Privredna komora Srbije (PKS), Beograd, mart 2016. godine.
2. Cvijanović, D., Trandafilović, S., Imamović, N. (2013): “*Marketing koncept u funkciji razvoja poljoprivrednih preduzeća u tranzicionim zemljama*“, Ekonomika poljoprivrede, vol. 60, no. 1, pp. 113-122.
3. IPARD II program za Srbiju (2014-2020), Ministarstvo poljoprivrede i zaštite životne sredine Republika Srbija, Beograd, 2014.
4. Izveštaj sa sastanka fokus grupe Stara Pazova – Bojana Bekić, Institut za ekonomiku poljoprivrede, Beograd, 22.12.2015.
5. Jeremić Zoran, Milojević Marko, Terzić Ivica (2016): “*Poslovne performanse 15 najvećih izvoznika iz prehrambeno-prerađivačke industrije u periodu 2008-2014. godina*“, Ekonomika poljoprivrede, vol. 63, no. 3, pp. 943-957.
6. Maletić, R., Popović, B. (2016): “*Proizvodni kapaciteti porodičnih poljoprivrednih gazdinstava Srbije i zemalja EU*“, Teme 2016, vol. 40, no. 2, pp. 807-821.
7. Manniche, J., Testa, S. (2010): “*Knowledge Bases in Worlds of Production: The Case of the Food Industry*“, Industry and Innovation, vol. 17, no. 3, pp. 263–284.
8. Milanović, M.R., Stevanović, S., Dimitrijević, B. (2016): “*Agrarni potencijali u reindustrijalizaciji Srbije - potrebe i mogućnosti revitalizacije industrije agrarnih*

- inputa*”, *Ekonomika poljoprivrede*, vol. 63, no. 1, pp. 143-158.
9. Nikolić, M. (2006): “*Usporedna analiza starosne strukture seoskog stanovništva u opštinama Stara Pazova i Blace*”, *Ekonomika poljoprivrede*, vol. 52, no. 1-2, pp. 142-151.
 10. Odluka o budžetu opštine Stara Pazova za 2016. godinu, „Službeni list opština Srema“ broj 35/15; <http://www.starapazova.rs/images/stories/PDF/budzet/2016/Odluka%20o%20budzetu%20opstine%20Stara%20Pazova%20za%202016.godinu.pdf> date of access: 10.02.2016.
 11. Petrović, Ž., Čikić, J. (2005): “Savetodavstvo kao činilac ruralnog razvoja Srbije“, Međunarodni naučni skup: *Multifunkcionalna poljoprivreda i ruralni razvoj*, 08-09. decembar, Institut za ekonomiku poljoprivrede, Beograd, pp. 354-362.
 12. Popis poljoprivrede 2012, Poljoprivredna mehanizacija, oprema i objekti u Republici Srbiji, Republički zavod za statistiku, Beograd.
 13. Popis poljoprivrede 2012, Ostali podaci o gazdinstvu, nivo naselja, Republički zavod za statistiku, Beograd.
 14. Popis poljoprivrede 2012, Poljoprivredni objekti, nivo naselja, Republički zavod za statistiku, Republika Srbija.
 15. Popis poljoprivrede 2012, Knjiga 2. Republički zavod za statistiku, Beograd 2014.
 16. Porter, M.,E. (1990): *Competitive Advantage of Nations*, The Free Press, New York.
 17. Revizija strategije održivog razvoja Opštine Stara Pazova 2010-2020. godine, Pokrajinski sekretarijat za međuregionalnu saradnju i lokalnu samoupravu, Opština Stara Pazova, decembar 2015. http://www.starapazova.rs/images/stories/opstinske_odluke_pdf/Revizija%20Strategije%20odrzivog%20razvoja%20opstine%20Stara%20Pazova%202010-2020.pdf; date of access: 10.02.2016.
 18. Prostorni plan opštine Stara Pazova do 2025. godine, Javno urbanističko preduzeće, Stara Pazova, decembar 2011.
 19. Regulativa 1305/2013 (Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005 (OJ L 347, 20.12.2013, p. 487)).
 20. Savić, L.J., Bošković, G., Mičić, V. (2016): “*Agricultural industrija Srbije - potencijali i perspective*”, *Ekonomika poljoprivrede*, vol. 63, no. 1, pp. 107-122.
 21. Strategija poljoprivrede i ruralnog razvoja Republike Srbije za period 2014-2020. godine, Službeni glasnik Republike Srbije broj 85/14.
 22. Strategija ruralnog razvoja opštine Stara Pazova za period 2015 - 2025 godine, Institut za ekonomiku poljoprivrede, Beograd, 2016
 23. Van den Ban, A.W., Hawkins, H., S. (1996): *Agricultural Extension*, Blackwell Science, UK.
 24. <http://www.polj.savetodavstvo.vojvodina.gov.rs/book/export/html/2178>; date of access: 10.02.2016.
 25. <http://www.starapazova.rs/opstina-stara-pazova/obrazovanje/srednje-skole.html>; date of access: 10.02.2016.

26. <http://mtt.gov.rs/informacije/baza-trgovackih-preduzeca-i-preduzetnika/t20836245>;
date of access: 17.02.2016.

POLJOPRIVREDNI POTENCIJALI I RAZVOJNI PRIORITETI OPŠTINE STARA PAZOVA⁵

Branko Mihailović⁶, Zoran Simonović⁷ Nikola Ćurčić⁸

Apstrakt

U radu se istražuju poljoprivredni potencijali opštine Stara Pazova, te se shodno tome definišu razvojni prioriteti u ovoj oblasti. Cilj istraživanja je sagledavanje realnih mogućnosti za unapređenje agrara Opštine. Analiza je fokusirana na: transfer znanja i inovacija, agrotehničku opremljenost, skladišne i doradne kapacitete u poljoprivredi, preradu poljoprivrednih proizvoda i viziju i razvojne prioritete u poljoprivredi Opštine. Rezultati istraživanja pokazuju da unapređenje konkurentnosti poljoprivrednog sektora opštine Stara Pazova zahteva realizaciju adekvatnih strateških mera i projekata na planu unapređenja ljudskog potencijala, većeg stepena prerade poljoprivredno-prehrambenih proizvoda, kao i bolju agrotehničku opremljenost poljoprivrednih proizvođača. Aktivnosti na ovom planu uključuju pre svega, veću povezanost nauke i prakse preko reorganizovanih poljoprivrednih stanica, savetodavne službe, matične službe, zemljoradničkih zadruga i drugih udruženja poljoprivrednika; razvoj i implementaciju novih znanja i veština poljoprivrednika kroz savete, obuke, seminare, kurseve; podršku mladim poljoprivrednicima u modernizaciji gazdinstva. Svi projekti u ovoj oblasti moraju bazirati na adekvatnoj državnoj podršci i koordiniranim aktivnostima javnog i privatnog sektora.

Ključne reči: *poljoprivreda, transfer znanja, skladišni i doradni kapaciteti, razvojni prioriteti.*

5 Rad je deo istraživanja na projektu broj III 46006: „Održiva poljoprivreda i ruralni razvoj u funkciji ostvarivanja strateških ciljeva Republike Srbije u okviru dunavskog regiona“ koji finansira Ministarstvo prosvete, nauke i tehnološkog razvoja Republike Srbije u periodu 2011-2017.

6 Dr Branko Mihailović, Viši naučni saradnik, Institut za ekonomiku poljoprivrede, Volgina ulica br. 15, 11060 Beograd, Srbija, Telefon: 011 697 28 42, E-mail: brankomih@neobee.net.

7 Dr Zoran Simonović, Naučni saradnik, Institut za ekonomiku poljoprivrede, Volgina ulica br. 15, 11060 Belgrade, Srbija, Telefon: 011 697 28 58, E-mail: zoki@medianis.net.

8 Nikola Ćurčić M.A., Asistent u nastavi, Univerzitet Union, „Nikola Tesla“, Beograd, Fakultet za menadžment, Njegoševa 1a, 21205, Sremski Karlovci, Srbija, Telefon: 021 21 550 45, nikolavcurcic@yahoo.com.

THE AGRICULTURE SECTOR IN WESTERN BALKANS – SOME CHARACTERISTICS OF DEVELOPMENT

Radmilo Nikolić¹, Aleksandra Fedajev², Vidoje Stefanović³, Silvana Ilić⁴

Summary

Agriculture in the Western Balkan countries has the significant role. It has the highest share in GDP right after the industry. However, transition processes as well as the breakup of former Yugoslavia caused serious stagnation in this economic activity in almost all its areas. Measures and actions taken in order to make an unfavourable situation in this sector better, did not bring results which had been expected. The recovery of agriculture is still slow and faces numerous obstacles. The aim of this paper apropos is to analyse the role of this sector in Western Balkan economies by using the multi-criteria analysis or more precise PROMETHE GATA methodology. Obtained results indicate that agriculture sector has the most significant role in Albanian economy, followed by FRY Macedonia, Bosnia and Herzegovina, Serbia, Croatia and, at the very end, Montenegro.

Key words: agriculture, Western Balkans, economic development, multi-criteria analysis.

JEL: Q10, Q16,

Introduction

At the beginning of XXI century, the European Union formulated the name of the region – Western Balkans, to indicate the group of Balkan countries which are not members of the European Union, but strive to become the members. In that sense, this region consists of

- 1 Radmilo Nikolic Ph.D., Full Professor, University of Belgrade, Technical faculty in Bor, 19210 Bor, Vojske Jugoslavije Street no. 12, Republic of Serbia, Phone: +381 63 842 74 85, E-mail: mikolic@tf.bor.ac.rs.
- 2 Aleksandra Fedajev Ph.D., Assistant Professor, University of Belgrade, Technical faculty in Bor, 19210 Bor, Vojske Jugoslavije Street no. 12, Republic of Serbia, Phone: +381 69 483 33 64, E-mail: afedajev@tf.bor.ac.rs.
- 3 Vidoje Stefanovic Ph.D., Full Professor, University of Nis, Faculty of science and mathematics, 18000 Nis, Visegradska no. 33, Republic of Serbia, Phone: +381 64 229 70 77, E-mail: widojes@yahoo.com.
- 4 Silvana Ilic, Ph.D, Associate Professor, John Naisbitt University, Faculty of Management in Zajecar, 19000 Zajecar, Park suma Kraljevica nn., Republic of Serbia, Phone: +381 65 505 55 11, E-mail: silvana.ilic@fmz.edu.rs.

countries of former FR Yugoslavia (excluding Slovenia) and Albania (Fedajev, 2015). In the mid-2013 Croatia has become the member of EU, but many authors still include this country in the analysis of this region, as a good role-model for other states.

Agriculture has its long tradition in the Western Balkans. It represents one of the oldest activities in human society, being one of the predominant occupations of the population even today. For many years agriculture had been the main occupation of the population in this region, but, over time, it was overtaken by the industry (Nikolić, 2012). Nevertheless, agriculture still brings a significant contribution to economic development of the countries in this region. Historically, agriculture in the Western Balkans was very obsolete and underdeveloped during the first half of XX century. So, it could not provide enough food for the population nor raw material for already undeveloped food industry as well as other processing industries. It had natural character, with only one-third of the production realized through the market. During the Second World War modest agricultural capacities were largely destroyed and devastated. This particularly affected agro-industry causing its severe collapse.

After the war, special attention was paid to food production. It became one of the priority activities in economy. By taking various actions and measures its accelerated development was being boosted even more. The achieved effects were obvious in all aspects of production (The Federal Statistical Office, 1986). The average annual agricultural production growth rate on the territory of former Yugoslavia (now independent states: Slovenia, Croatia, Bosnia, Montenegro, Serbia and Macedonia) in the period from 1945 to the 1990s was close to 3%, although it had always been lower than the industrial production growth rate. The total agricultural production was three times larger, with significantly increased livestock and altered cattle breeds; fruit orchards and vineyards were expanded, and the application of modern techniques and technologies, along with agro-technical measures in the production, enabled increase in yield of the most important crops from 1 up to 1,5 times. Due to aforementioned progress the following production results were visible in the mid 80's: this region produced 1% of total wheat production in the world; 2% of corn; 2.4% of sugar beet, 1.1% of all kinds of meat (0.8% of beef and 1.4% of pork) as well as 1% of cow milk. The share in European production of food was much more significant (Nikolić, 1999). At the same time, Albanian agriculture also recorded a remarkable progress. Its development was directly controlled by the state.

However, since the 80's, the growth rate in agricultural production in former Yugoslavia had been slowing down. Stagnation was especially noticed in livestock production, mainly in the private sector. Such conditions were further worsened by the events related to the breakup of the country in the 90s, causing consequences such as breakup of unified market, war devastation of agricultural and agro-industrial resources, limitations in the export of agricultural and agro-industrial products and the import of the necessary input for their production, insufficient application of modern techniques and technologies, decrease of domestic demand due to the economic crisis and downfall of life standard of the population. Agriculture suffered yet another decline, although even in such circumstances, it managed to endure the greatest burden of the crisis which the economies in the region had been affected by. Meanwhile, in Albania, the agricultural

production growth had continued with slight oscillations. Modest agricultural capacities were still unable to feed the population, so the necessary food was provided by import. Albania was famous for production and export of tobacco, alcoholic beverages and wool. (Marković, 1989).

Transition processes in Western Balkan economies which also included reforms of agriculture sector started in the early 90's (Stojanović, 2005). The aim was transition from a non-functional and a non-efficient system into a modern, open and diverse market based economy (Zec, Živković, 1997) which would create the conditions for overcoming the crisis as well as establishing long term sustainable development. For agriculture, it meant creating favorable ambience for market economy, thus, greater efficiency in business activities. During the 90's, transition processes were very slow followed with difficulties and uncertainties. At that time the political situation in the region was unstable which considerably contributed to the situation. (Uvalić, 2011). Besides, no one was ready for substantial and comprehensive changes, not even the authorities. Hence one can say that the true reforms began in the early 2000's, with radical changes in all aspects of both economy and society. Some countries, created after the breakup of Yugoslavia, had certain advantage at the beginning of transition, due to reforms they had performed earlier, which transformed them in a kind of "semi market oriented system" (Nikolić, Fedajev, Riznić, 2013). However, delay in conducting reforms in the 90s as well as many obstacles following the whole process on one hand, and faster progress in the rest of transitional countries, especially Central and Eastern European countries, on the other, caused that even today Balkan countries are in the last position at the transitional countries' ranking (Kovačević, 2011). The exception is Croatia which successfully managed to complete the reforms and in 2013 it joined the European Union. Even Albania, which had unfavourable starting position, managed to reform certain economic areas faster than the countries formed after the breakup of Yugoslavia.

In agriculture, transition processes were carried out in accordance with the changes of the general economic situation in a country. Due to the fact that most of the agricultural land in former Yugoslavia was owned by private owners, the problems which occurred during the ownership changes in state owned companies, were being avoided. Namely, many of large agricultural enterprises went bankrupt after privatization, while some of them are still owned by the state. On the other hand, Albania successfully managed to privatize agricultural land. It also achieved an overall progress in agriculture, thus achieving a fairly high economic growth rate during the nineties (Rikalović, 1999).

This paper is focused on the investigation of agriculture role in Western Balkan economies in the period between 2001 and 2012, i.e. on the period when the economic reforms in these countries were most intensive. In order to get a more complete insight into implemented changes and reforms so far, a multi-criteria analysis was applied, the PROMETHEE GAIA method to be more precise. Usage of this method enabled the ranking of the countries based on some important indicators that reflect the role of agriculture in the economy.

Methodology

In order to perform a comparative analysis of the importance of agriculture sector for economic development, multi-criteria analysis has been applied. The aim of multi-criteria analysis is to rank numerous alternatives from best to worst, based on a large number of opposing criteria. One of the most commonly used methods of multi-criteria analysis is PROMETHEE GAIA method, developed by Brans, Vincke and Marshal during the late XX century (Brans, Mareschal, Vincke, 1984, Brans, Vincke, 1985). The PROMETHEE GAIA methodology was conducted on the basis of data on gross value added in agriculture (% GDP) from World Bank database, employment in agriculture (% of total number of employees) from national statistical offices, balance of agriculture trade and net production index number from FAOSTAT in 2012, as an end of the period.

PROMETHEE GAIA methodology

In recent years, a large number of methods for decision support have been developed in order to facilitate finding the best compromise solution. One of them is certainly the PROMETHEE method developed by Jean-Pierre Brans and Bertrand Mareschal. This is one of the newest methods in multi-criteria analysis, and it is known as one of the most effective and the simplest in this field. The advantages of this method lie in the way of structuring the problem, in the amount of data that can be processed, the possibility of quantifying qualitative data, good software support and presentation of results (Obradović, Fedajev, Nikolić, 2012).

The PROMETHEE method is an adequate method for solving problems whose aim is multi-criteria ranking of final set of alternatives (in this case Western Balkan countries) based on a number of criteria which need to be maximized or minimized. For each observed alternative it calculate its value expressed in level of preferences. Thereby, each alternative is evaluated based on the two preference flows. Positive preference flow $\phi + (P)$ indicate how much is given alternative better than the other (according to all criteria). Accordingly, the higher this preference flow is, the alternative is better. The negative flow of preference $\phi - (P)$ indicates how much a given alternative is worse than the rest, and therefore if this flow is lower, the alternative is better. After that, the PROMETHEE method accounts net preference flow $\phi (P)$ as the difference between these two flows (Brans, Mareschal, Vincke, 1984, Brans, Vincke, 1985).

On the basis of such calculated net preference flow, final ranking of alternatives is performed, from the best one, with the highest net preference flow, to the worst one, with the lowest net preference flow. To calculate mentioned flows, PROMETHEE method requires the specification of appropriate parameters for each criterion (Brans, Mareschal, Vincke, 1984; Brans, Vincke, 1985):

1. Direction of preference, minimizing or maximizing;
2. Weight coefficients, indicating the importance of certain criteria;
3. Adequate preference function, that converts the difference between the two alternatives in the level of preference, which ranges from 0 to 1. In PROMETHEE

methods following preference functions are available: Linear, Usual, U-shape, V-shape, Level and Gaussian;

4. Preference threshold (p), which represents the minimum deviation that decision maker considers important for the decision making;
5. Indifference threshold (q), which represents the maximum deviation that decision maker considered irrelevant for the decision making.

After defining parameters, PROMETHEE methodology is used, which consist of next steps (Behzadian, Kazemzadeh, Albadvi, Aghadasi, 2010):

1. First, deviation based on comparison of pair of alternative is calculated

$$d_j(a, b) = g_j(a) - g_j(b) \tag{1}$$

Where $d_j(a, b)$ represent differences between the value of alternative a and b according to every criteria.

2. After, the chosen function of preferences is used:

$$P_j(a, b) = F_j[d_j(a, b)] \tag{2}$$

Where $P_j(a, b)$ represents preferences alternative a for each alternative b within every criteria, as a function of $d_j(a, b)$.

3. Further, the general index of preferences is calculated:

$$\forall a, b \in A \pi(a, b) = \sum_{j=1}^n P_j(a, b)w_j \tag{3}$$

Where $\pi(a, b)$ stands for weighted sum P(a,b) for each criteria, while w_j stands for weighted j criteria coefficient.

4. Then, the positive and negative course of preferences are calculated:

$$\varphi^+(a) = \frac{1}{m-1} \sum_{x \in A} \pi(a, x) \tag{4}$$

$$\varphi^-(a) = \frac{1}{m-1} \sum_{x \in A} \pi(x, a) \tag{5}$$

Where φ^+ represents positive and φ^- negative preferences values for each alternative.

5. Finally positive and negative courses of preferences are used to calculate net flow of preferences and rank alternative:

$$\varphi(a) = \varphi^+(a) - \varphi^-(a) \tag{6}$$

Where $\varphi(a)$ stands for net course for each alternative.

On the bias of $\varphi(a)$ value the countries are ranked from best to the worst, having in mind all observed criteria.

Role of the agriculture in economy

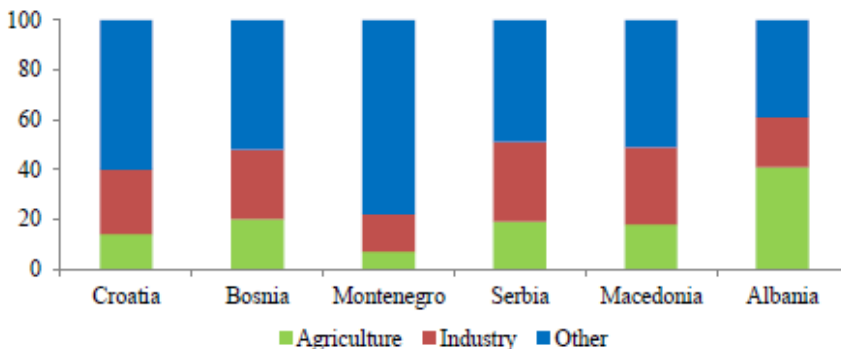
Bearing in mind that all Western Balkan countries are transition economies and that they have favourable geographic and climate conditions for agricultural production, their development is still mostly dependent on agriculture sector performance. Most of them have significant share of agriculture employees in total number of employees, the agriculture production records relatively high growth rates (contributing to the level of total production in country), foreign trade of agriculture products enables the reduction the trade deficit in these countries (which is significant problem in most of transition economies) and the gross value added in agriculture contributes greatly to the creation of GDP.

But, these countries, also face significant limitations in the agriculture development, like fragmented farm-holdings, low productivity, the use of outdated techniques and technology, low level of investments (caused by insufficient investment capacities and lack of interest for investments), low level of business activities, undeveloped infrastructure, low income and lack of alternative types of financing (Stojadinović Jovanović, Dašić, 2015). Depending on the extent to which they have managed to reduce the effect of these factors, the Western Balkan countries have different performances of their agricultural sector.

Employment

Despite an evident deararization during the second half of the last century, a large part of the population in the Western Balkans was still employed in agriculture. This situation was largely retained, even in the period of transition, although it had been expected that some of the workers from industrial companies which went bankrupt, would return to their villages and re-engage themselves in agricultural production.

Figure 1. Employment trends in agriculture, industry and other sectors in 2012.



Source: Author's calculations based on data from National Statistical Offices of observed countries.

It is obvious from the Figure 1 that Albania has a very high employment in agriculture, 41.5%. This defines the country as agricultural. After Albania come Serbia and Bosnia with 20% of agricultural population. Macedonia follows, with 17.3%, Croatia with 13.7% and Montenegro with only 5.7% of the total number of employees. In the EU that figure is around 6%.

Particular problem is the age structure of employees in agriculture, due to the dominance of the elderly population. That is particularly true for Montenegro (Božović, Đurašković, 2014). The young are less motivated to stay in the village and work in agricultural production. Hence, year after year, many villages located south of the Sava and Danube rivers, are becoming uninhabited and huge complexes of agricultural land are being abandoned and overgrown with weeds.

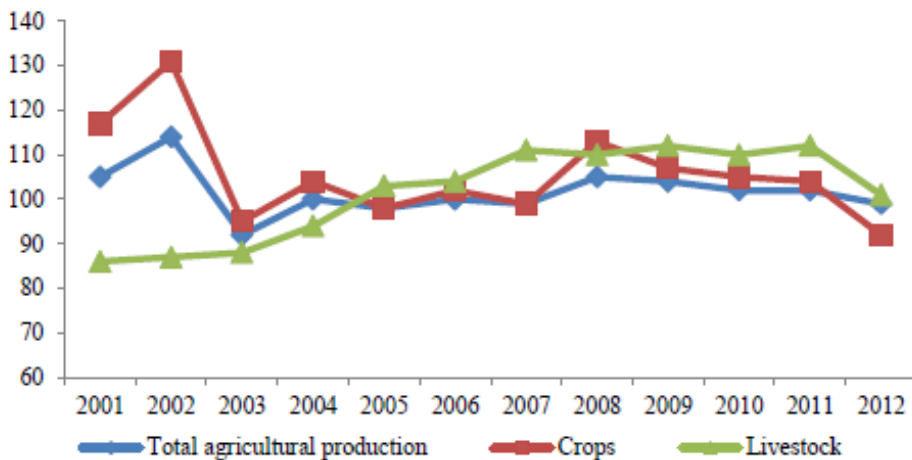
Trends in Agricultural production

Available resources for development, position and role in the economic system are the main preconditions for the agriculture development, and therefore for the development of both volume and structure of its production. Therefore, the achieved level of agriculture production significantly varies in Western Balkan countries.

Croatia

Croatia represents one of the larger agriculture producers in the region, right behind Serbia. It has solid development resources. Crops are dominant in plain areas, orchards and vineyards in hilly areas, livestock production in the mountains while Mediterranean cultures are present on the coast. In the structure of total agricultural production, in 2012, crops production prevailed with 63% and farming had the leading position. In livestock production - pig breeding was dominant.

Figure 2. Production Indices - Net Production Index Number (2004-2006 = 100), 2001 – 2012



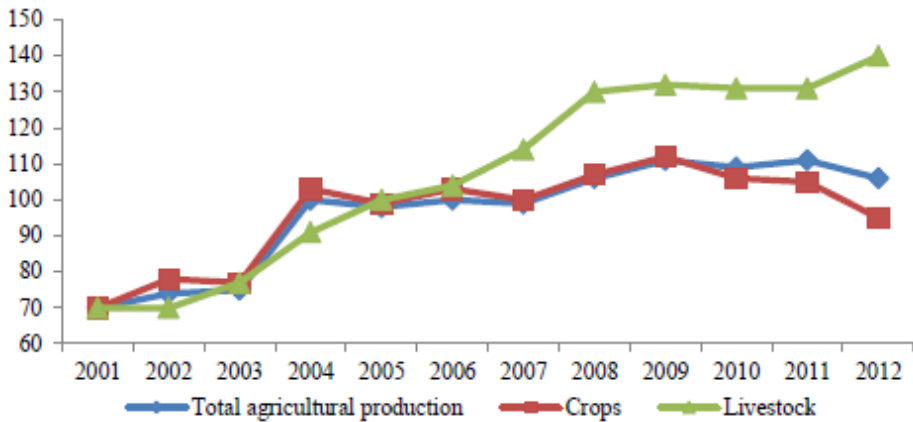
Source: FAOSTAT database.

After certain stagnation came a period of slow growth in the total agricultural production. Crops production had significant oscillations while livestock production showed a more stable growth. In the production of crops, cereals were predominant with presence of vegetables, industrial and forage plants as well.

Bosnia and Herzegovina

Bosnia and Herzegovina is mostly mountainous country with some parts of hilly areas and the plains in the valley of rivers. These resources determined agricultural development of the country.

Figure 3. Production Indices - Net Production Index Number (2004-2006 = 100), 2001 - 2012



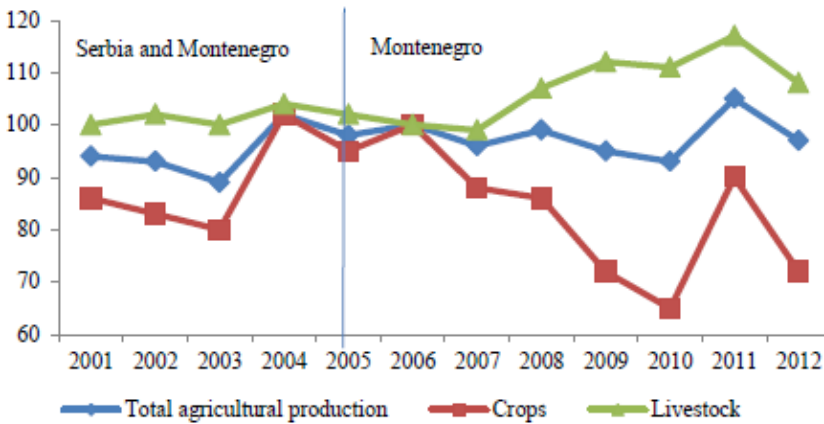
Source: FAOSTAT database.

The total agricultural production value had a trend of constant growth, where livestock production growth was pretty faster, while crop production varied a lot.

Montenegro

Besides tourism, as the leading economic sector, Montenegro paid a certain attention to agriculture production. Considering the available resources, the production level was mostly modest. Agriculture held a 9% share in GDP, or 18% together with food industry.

Figure 4. Production Indices, 2001 - 2012 - Net Production Index Number (Serbia and Montenegro 2004-2006 = 100, Montenegro 2006 = 100)



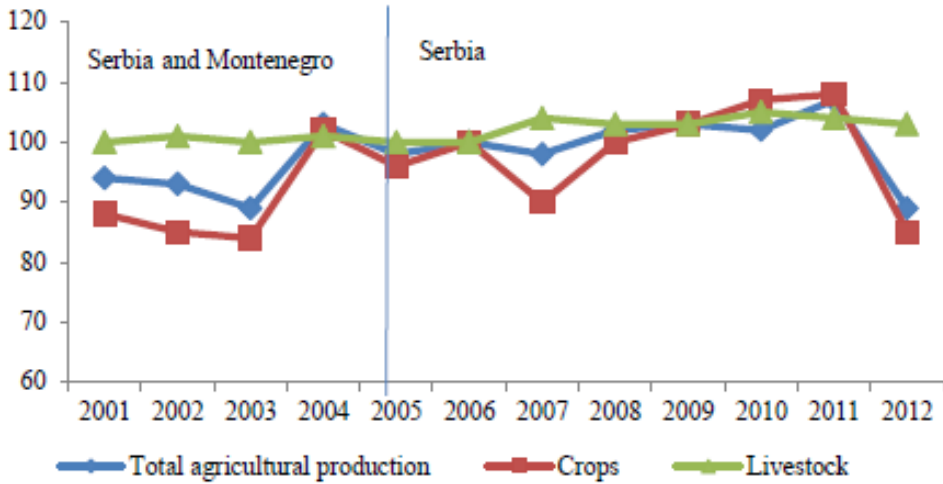
Source: FAOSTAT database.

The total agricultural production was increasing slowly. The production of crops was increasing more rapidly, but with oscillations. Its share in the structure of agricultural production reached 63%. At the same time, livestock production had rapidly been decreasing.

Serbia

Serbia has very favorable conditions for the development of various agricultural production segments. Fertile plains, hilly areas with vast meadows and pastures, suitable climate and dense network of river flows are the basic natural amenities of this area. Moreover, Serbia has long tradition of farming. However, these favorable agriculture development resources were not valorised adequately. Since the 80's, and especially 90's, there had been a trend of decrease in production in many sectors of agriculture. During the intensive transition, after 2000, there had been a certain increase of production with occasional oscillations. Livestock production had firmer stability, while the production of crops recorded its ups and downs. Two major downfalls of crop production occurred in 2007 and especially in 2012. A change in the structure of production is one of the specific features of Serbian agriculture. Previously dominant livestock production lost its position in favor of crop production.

Figure 5. Production Indices, 2001 - 2012 - Net Production Index Number (Serbia and Montenegro 2004-2006 = 100, Serbia 2006 = 100)



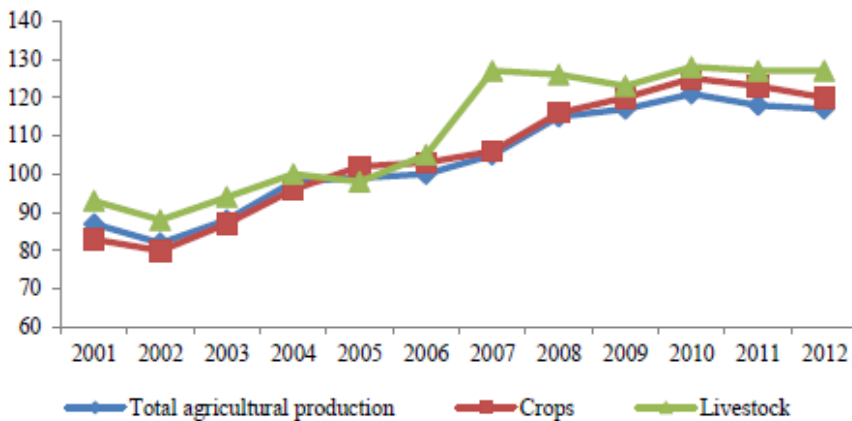
Source: FAOSTAT database.

In recent years, the situation in livestock production has been slightly better. Wheat production is dominant in the structure of crop production. Also, most of agricultural land is covered with vegetables, industrial and forage plants.

Macedonia

Agriculture has an important position in the economy of Macedonia. It has many natural advantages, such as favourable relief, climate and water resources. Traditionally, Macedonia has always been well known for the production of quality vegetables, fruits and grapes.

Figure 6. Production Indices – Net Production Index Number (2004-2006 = 100), 2001 – 2012



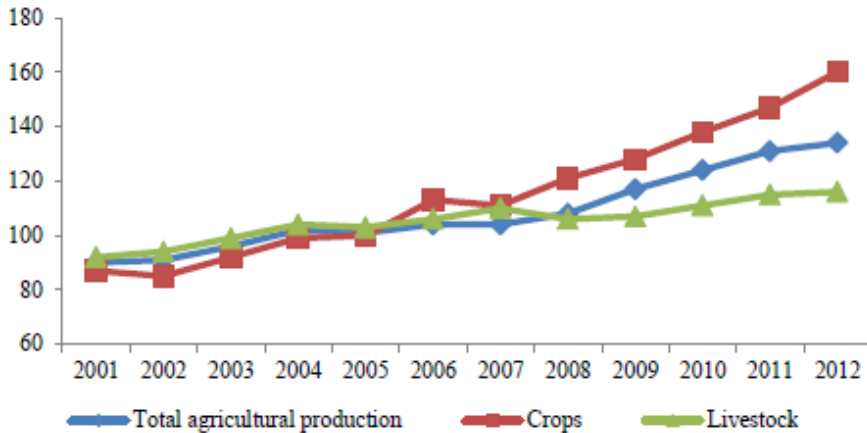
Source: FAOSTAT database.

The total agricultural production has had a trend of constant growth, mainly due to livestock production, which had a significant increase in the observed period. Crop production also recorded increase.

Albania

Albania pays special attention to the development of agriculture. The area is convenient mainly for livestock production, while river valleys and sea coast are suitable for growing crops and fruits.

Figure 7. Production Indices – Net Production Index Number (2004-2006 = 100), 2001 – 2012



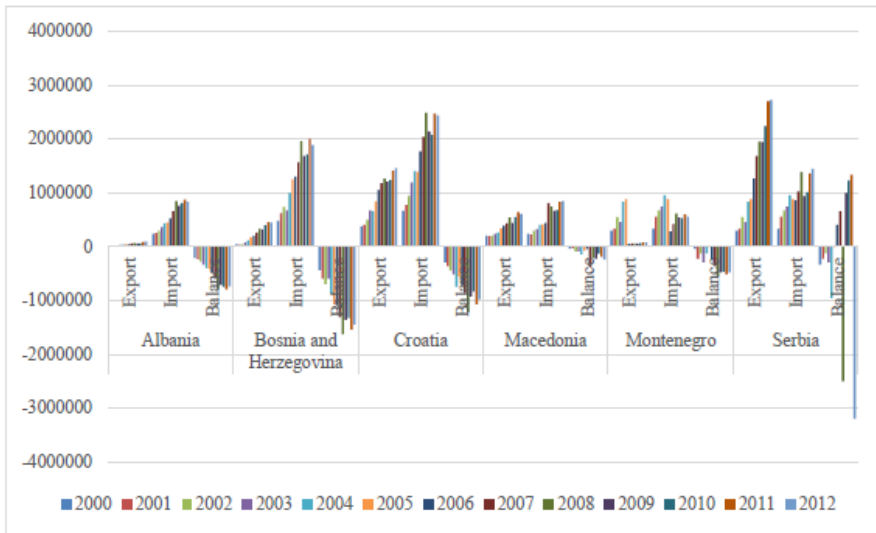
Source: FAOSTAT database.

After a strong downfall at the beginning of transition processes, Albanian agriculture production has recorded significant growth since 2001, both in crops and livestock.

Foreign trade of agricultural products

After meeting their own needs, the countries of Western Balkans exported a certain share of their agricultural and food products. During the observed period, trade was mostly realized between Balkan countries themselves, through CEFTA agreement. The greatest exporters of agro-food products in the region are Serbia, Croatia and Macedonia, while Croatia and Bosnia are the greatest importers. Serbia is the only country in the region with a surplus in the agriculture products balance of trade.

Figure 8. Agriculture and food industry trade, 2001 – 2012



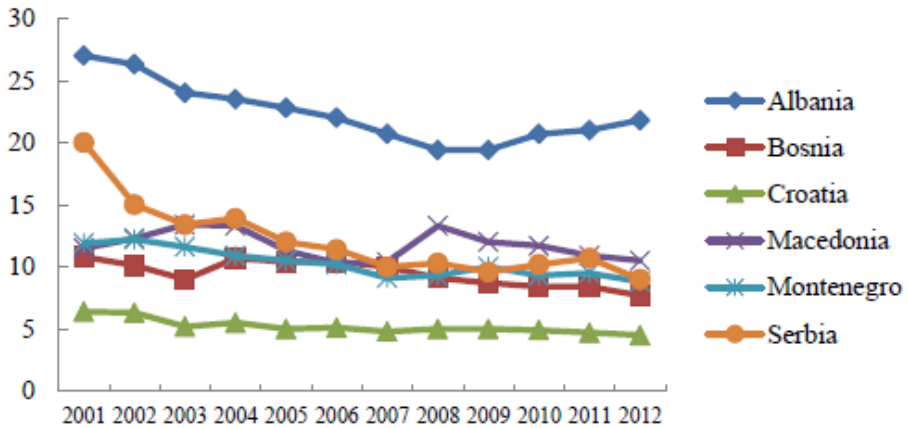
Source: FAOSTAT database.

In 2012, the total export of agro-food products from the Western Balkan countries reached 5.369.183.000 USD, and at the same time the import reached 8.139.197.000 USD. Serbia is a leader in export, with 2.7 billion USD, followed by Croatia (1.4) and Macedonia (0.64). Croatia is the leading importer, with 2.5 billion USD worth import in 2011, followed by Bosnia and Herzegovina, with approximately 2 billion USD.

Gross value added

Economic crisis, caused by the breakup of Yugoslavia in the 90's, negatively influenced the entire economy of the region including agriculture as well. Unified market fell apart, former republics became independent states, previously established trade arrangements was reduced or terminated, financial sanctions and devastation caused by civil war had considerably diminished agricultural funds. Furthermore, during transition, a majority of large agricultural concerns were closed, along with many small agricultural cooperatives which were holders of agricultural production. Even in such circumstances, agriculture, even though carrying the burden of economic crisis, managed to survive. Over time, with improvements in political and economic ambience in the region, the situation in economy as well as in agriculture became more favourable. The volume of production increased, foreign trade and life standard of the population started to improve. However, due to the accelerated development of other economic areas, such as industry and service sector, the share of agriculture in GDP had been constantly decreasing. In 2012, Albania has the highest contribution of agriculture in creation of gross added value among countries in the region, reaching 22%.

Figure 9. Gross value added in agriculture (% of GDP)



Source: World Bank.

Other Western Balkan countries are far below Albania by the share of GVA in GDP – FRY Macedonia with 10%, Serbia and Montenegro with 9%, Bosnia with 8% and finally Croatia with 4%. It is being expected that the trend of decrease of this indicator will continue in the future.

Ranking results

The multi-criteria analysis was conducted by using the Visual PROMETHEE software package, which has the ability to present the results graphically and, thus, to provide the more complete picture of the observed problem. As it is mentioned above, conducting the multi-criteria analysis, using the PROMETHEE GAIA method, requires the definition of certain parameters. In this regard, Table 1 presents the parameters of the multi-criteria model.

As it can be seen from Table 1, all indicators should be maximized in order to investigate which one has the greatest importance of agriculture sector in the economy. Also, linear preference function, with appropriate preference threshold and indifference threshold, was applied (as the Visual PROMETHEE software suggested according to the data dispersion). Weights for all observed indicators are equal in order to perform objective analysis, without giving an advantage to any of them. All of this indicators give some important information about the importance of agriculture sector for economic development.

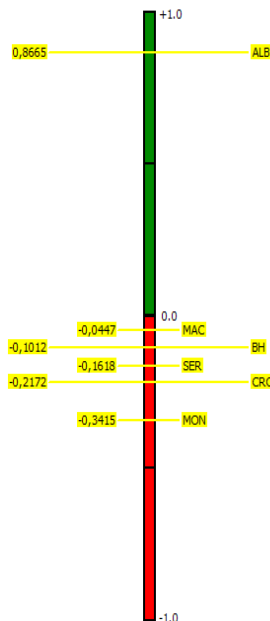
Table 1. The parameters of the multi-criteria model

Parameters	Share of employees in agriculture in total number of employees	Net Production Index Number	Balance of agriculture product trade (% GDP)	Gross value added, agriculture (% of GDP)
Direction of preferences	Max.	Max.	Max.	Max.
Preference function	Linear	Linear	Linear	Linear
q	10	12	5,8	5,5
p	23	34	15,5	11,8
Weights	0.25	0.25	0.25	0.25

Source: Author’s calculations.

Using the mentioned parameters, PROMETHEE GAIA method was applied and the ranking results are shown in Figure 10. From this figure it can be concluded that the agriculture sector has the greatest importance for economic development of Albania, having in mind that it has the greatest net preference flow. Also, it should be noticed that only this country has a positive net preference flow. Albania is followed by FRY Macedonia, Bosnia and Herzegovina, Serbia, Croatia and Montenegro, whereby all these countries have negative net preference flow, thus, unfavourable position of agriculture in the economy.

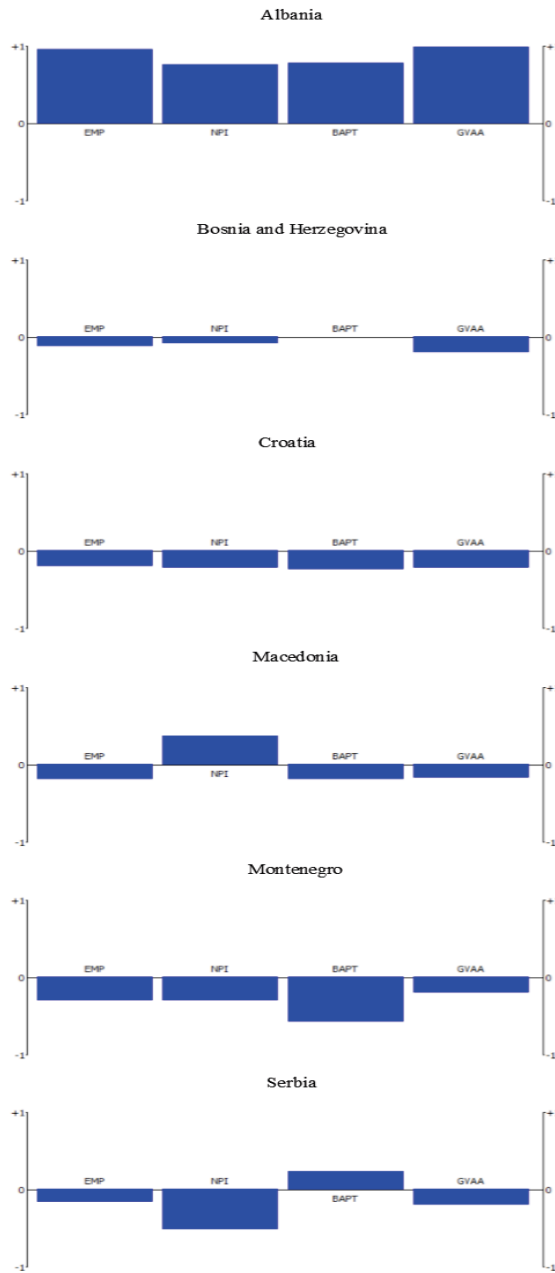
Figure 10. PROMETHEE II ranking results



Source: Author’s calculations.

In order to realize which indicators contributed to such country ranking, the country profiles are shown in the Figure 11.

Figure 11. Country profiles



Source: Author's calculation.

This figure indicates that Albania has significant advantage in all observed indicators over the other Western Balkan countries and that explains why this country has by far the best position. Bosnia and Herzegovina has some disadvantages in employment, net production index and gross value added in agriculture, which positioned this country in the middle of the ranking list. Croatia has relative disadvantage in all observed indicators and such state led this country to the second last position. Its second position Macedonia has deserved by significant advantage in net production index. Montenegro has the significant disadvantage in all observed indicators, especially in the agriculture products balance of trade, and that is the reason why this country has the worst position on the rankings indicating that agriculture do not contribute much to economic development of this country. Finally, Serbia reached the fourth position due to advantage in agriculture production balance of trade and disadvantage in the remaining indicators, especially in net production index.

On the basis of the ranking results it could be concluded that all countries with negative preference flow should pay much more attention to agriculture, in order to improve their own agriculture sector. This especially refers to Montenegro.

Conclusion

The changes due to transition, which began in the 90's, brought radical alterations to each field of economy and society. That was a huge challenge for the newly formed countries in Western Balkans. The previous system, based on planned economy, that had been present for decades, was supposed to be abandoned and a new model, based on market laws, was supposed to be established. Additionally, economy of scale was supposed to be replaced by rational and profitable economy. Overall, despite some positive effects, the aims of transition have not been reached. Economies of the countries in the region are in very unfavourable position nowadays. Economy and industry is recovering slowly, unemployment is becoming a general problem of the society, external and internal imbalances reached a disconcerting level, the life standard is at a very low level and the problem of poverty is becoming more pronounced.

In such circumstances agriculture, one of the most vital sectors of economy for the countries in Western Balkans, has existed and functioned for years. Additionally, during transition, agriculture had faced further problems - crucial for its development. The most important were the disclosure of large agricultural enterprises, demesne fragmentation and insufficient cooperation and integration of small farmers, internal markets became unstable and non-regulated, strengthening of monopolies and occurrence of illegal trade, import of cheap agricultural products due to liberalization of foreign trade and, finally, inadequate and insufficient financial and credit support from the government. These were, among others, some of the most important reasons for slow and difficult reforms in agriculture and the reason why market model of doing business have not been applied properly.

Applied multi criteria analysis has shown that Albania has had the greatest contribution of agriculture sector to economic development, having in mind that this country recorded significantly higher values of observed criteria. Agriculture is one of the most important drivers

of economic development in this country. Other observed countries have had a considerably smaller contribution of agriculture to economic development. So far from Albania, according to net preference flow, Macedonia is in the second place, Bosnia and Herzegovina, Serbia, Croatia follow, while the last position on ranking list belongs to Montenegro.

Finally, it should be emphasized that it would be unrealistic to expect radical improvements in the agriculture of Western Balkans, at least in the near future. It will take considerable time and finances to change the existing state and to create basic preconditions for the application of market based economy in this field.

References

1. Agency for statistics of Bosnia and Herzegovina, available at: <http://www.fzs.ba/eng/gode.htm#AGRICULTURE>
2. Behzadian, M., Kazemzadeh, R.B., Albadvi, A., Aghadasi, M. (2010): *PROMETHEE: A comprehensive literature review on methodologies and applications*, European Journal of Operational Research, vol. 200, no. 1, pp. 198-215.
3. Božović, Ž. Đurašković, J. (2014): *The role of human factor in the development of agriculture in Montenegro*, Economics of agriculture, vol. 61, no. 1, pp. 7-16.
4. Brans, J.P., Mareschal, B., Vincke, Ph. (1984): *PROMETHEE: A new family of outranking methods in multi-criteria analysis*, Operational Research '84, Brans, J.P. (ed.), North-Holland, Amsterdam.
5. Brans, J.P., Vincke, Ph. (1985): *A preference ranking organization method: The PROMETHEE method for MCDM*, Management Science, vol. 31, no. 6, pp. 647-656.
6. Croatian, http://www.dzs.hr/default_e.htm
7. FAOSTAT Database, <http://faostat3.fao.org/home/E>
8. Fedajev, A. (2015): *Improving the business environment as a factor of acceleration of economic development in transition countries (PhD thesis)*, University of Kragujevac, Faculty of Economics, <http://nardus.mpn.gov.rs/handle/123456789/3552?show=full>
9. Jolović, A., Njegovan Z., Čavlin, M. (2014): *Financing of the agriculture in Serbia: state and prospects*, Economics of agriculture, vol. 61, no. 1, pp. 127-137.
10. Kovacević, M. (2011): *Dimenzije i uzroci neuspješne tranzicije u zemljama Zapadnog Balkana*, in: Cerović, B., Uvalić, M., (ed.) *Kontroverze ekonomskog razvoja u tranziciji – Srbija i Zapadni Balkan*, Naučno društvo ekonomista Srbije, Ekonomski fakultet u Beogradu, Beograd.
11. Marković, P. (1989): *Agrarni razvoj Jugoslavije*, Ekonomika, Beograd.
12. Nikolić, R. (1999): *Tržišni zakoni i razvoj poljoprivrede Jugoslavije*, Ekonomika, Niš.
13. Nikolić, R. (2012): *Troškovi u poslovnoj ekonomiji*, Don Vas, Beograd.
14. Nikolić, R., Fedajev, A., Riznić, D. (2013): *The effects of economic crisis in the Western Balkan countries*, Annals of Oradea University, vol. 22, no. 2, pp. 188-194.
15. Obradović, S., Fedajev, A., Nikolić, Đ. (2012): *Analysis of business environment using*

- the multi-criteria approach - case of Balkan's transition countries*, Serbian Journal of Management, vol. 7, no. 1, pp. 37-52.
16. Rikalović, G. (1999): *Ekonomika prirodnih resursa*, Biblioteka "Dr Đorđe Natošević", Indija.
 17. Savezni zavod za statistiku (1986): *Jugoslavija 1945-1985. godine*, Savezni zavod za statistiku, Beograd.
 18. State Statistical Office of the Republic of Macedonia, available at: <http://makstat.stat.gov.mk/pxweb2007bazi/Database/Census%20of%20Agriculture%202007/databasetree.asp>
 19. Statistical office of Montenegro – MONSTAT, available at: <http://www.monstat.org/eng/page.php?id=59&pageid=59>
 20. Statistical Office of the Republic of Serbia, available at: <http://webzrs.stat.gov.rs/WebSite/Public/PageView.aspx?pKey=711&URL=http://pod2.stat.gov.rs/ElektronskaBiblioteka2/Pretraga.aspx?pubType=1>
 21. Stojadinović Jovanović, S., Dašić, B. (2015): *The importance of foreign direct investment for South East European countries' agriculture*, Economics of agriculture, vol. 62, no. 3., pp. 661-676.
 22. Stojanović, B. (2005): *Tranzicija u Srbiji*. Institut za evropske studije, Beograd.
 23. Uvalić, M. (2011): *Zašto Zapadni Balkan kasni za Centralnom i Istočnom Evropom*, in: Cerović, B., Uvalić, M., (edt.) *Kontroverze ekonomskog razvoja u tranziciji – Srbija i Zapadni Balkan*, Naučno društvo ekonomista Srbije, Ekonomski fakultet u Beogradu, Beograd.
 24. Zakić, N., Vukotić, S., Cvijanović, D. (2014): *Organizational models in agriculture with special reference to small farmers*, vol. 61, no. 1, pp. 225-238.
 25. Zec, M., Živković, B. (1997): *Tranzicija realnog i finansijskog sektora*, Institut za evropske studije, Beograd.

SEKTOR POLJOPRIVREDE U ZEMLJAMA ZAPADNOG BALKANA TOKOM PERIODA TRANZICIJE

Radmilo Nikolić⁵, Aleksandra Fedajev⁶, Vidoje Stefanović⁷, Silvana Ilić⁸

Apstrakt

Tranzicioni procesi u zemljama Zapadnog Balkana su otpočeti tokom poslednje decade XX veka. Inisijalni rezultati tranzicije su bili ohrabrujući, ali je ovaj pozitivni trend oko vrlo brzo. Posledice raspada bivše Jugoslavije (građanski rat, sankcije UN, etnički sukobi, NATO intervencija, itd) onemogućile su sprovođenje reformi. Nakon stabilizacije političke situacije početkom XXI veka, otpočete su radikalne reforme.

Poljoprivreda predstavlja veoma značajan sector u većini od ovih privreda. Ima najveće učešće u stvaranju BDP-a, odmah nakon industrije, i najveće učešće zaposlenih u ovom sektoru u ukupnoj zaposlenosti. Međutim, tranzicioni procesi i raspad bivše Jugoslavije uzrokovali su stagnaciju u ovom sektoru u gotovo svim aspektima privređivanja. Primenjene mere i aktivnosti usmerene na prevazilaženje nepovoljnog stanja u ovom sektoru nisu dale željene rezultate. Oporavak poljoprivrede je još uvek spor i suočen sa brojnim ograničenjima. U tom smislu, cilj ovog rada je analiza položaja ovog sektora u zemljama Zapadnog Balkana, primenom multikriterijumske analize.

Ključne reči: *poljoprivreda, tranzicija, Zapadni Balkan, privredni razvoj, multikriterijumska analiza.*

5 Redovni profesor, dr Radmilo Nikolic, Univerzitet u Beogradu, Tehnički fakultet u Boru, 19210 Bor, Ulica Vojske Jugoslavije br. 12, Srbija, Telefon: +381 63 842 74 85, E-mail: mikolic@tf.bor.ac.rs.

6 Docent, dr Aleksandra Fedajev, Univerzitet u Beogradu, Tehnički fakultet u Boru, 19210 Bor, Ulica Vojske Jugoslavije br. 12, Srbija, Telefon: +381 69 483 33 64, E-mail: afedajev@tf.bor.ac.rs.

7 Redovni profesor, dr Vidoje Stefanovic, Univerzitet u Nišu, Prirodno-matematički fakultet, Višegradska ulica br. 33, 18000 Niš, Srbija, Telefon: +381 64 229 70 77, E-mail: widojes@yahoo.com.

8 Docent, dr Silvana Ilic, Univerzitet Džon Nezbit, Fakulteta za menadžment u Zaječaru, Park šuma Kraljevica bb, 19000 Zaječar, Srbija, Telefon: +381 65 505 55 11, E-mail: silvana.ilic@fmz.edu.rs.

ALTERNATIVE SOURCES OF FINANCING ENTREPRENEURIAL UNDERTAKINGS IN AGRICULTURE

*Vladimir Njegomir*¹, *Rajko Tepavac*², *Nenad Ivanišević*³

Summary

Insufficiency of internal financial resources and limited access to external sources of capital, as one of the key problems, local agricultural producers - entrepreneurs usually describe with high cost of capital, complicated procedures, lack of transparency in regard to the settlement of credit requests and problems with security of loans. The aim of this study is to analyze the possibilities of facilitating access to increased volume of capital for domestic entrepreneurs in agriculture by using funding sources that are applied in developed economies for financing entrepreneurs. In order to achieve the stated aim, the subject of investigation in this paper is the analysis of alternative sources of financing, which use or increased adoption in Serbia would provide greater availability of capital for agricultural producers and others across the chain of agrobusiness complex and thus the promotion of entrepreneurial activity, and consequently, greater competitiveness and greater income of domestic agricultural producers and others across the chain of agrbusiness indirectly leading to increased economic growth and improvement of the welfare.

Key words: *entrepreneurship, agriculture, microcredits, business angels, risk capitalists and crowdfunding.*

JEL: *Q01, Q14, L26.*

Introduction

All activities in agricultural production are permeated by entrepreneurship. Without innate entrepreneurship local agricultural producers could not survive. Entrepreneurship

-
- 1 Vladimir Njegomir Ph.D., Associate Professor, Union University, Faculty of Law and Business Studies, Dr Lazar Vrkatić, Bulevar oslobođenja no. 76, 21000 Novi Sad, Phone: +381 64 13 93 005, E-mail: vjegomir@eunet.rs
 - 2 Rajko Tepavac Ph.D., Associate Professor, Institute for economics and finance, Bulevar Mihajla Pupina no. 10 B/I, 11000 Belgrade, Phone: +381 63 600 217, E-mail: tepavac57@gmail.com
 - 3 Nenad Ivanišević, Ph.D., Assistant Professor, Ministry of Labour, Employment, Veteran and Social Affairs of the Government of the Republic of Serbia, Belgrade, Serbia, E-mail: nenad.ivanisevic@gmail.com

is especially important in the chain of agribusiness complex, which includes all subjects from primary agricultural production to the production of distribution of food products. Agribusiness consists: small family farms, farms, large agricultural corporations, credit institutions, suppliers of inputs, manufacturing companies, Transport network, wholesale, marketing, restaurants and retail food. Farm is the main business entity in the system of agribusiness. Farm is agricultural holding specialized in market production. Those farms are advanced farms that use modern manufacturing techniques and technology.

Entrepreneurship provides answers to questions of how, by who and with what consequences are detected, created and exploited opportunities for introducing new products and services (Venkataraman, 1997). Entrepreneurship is an individual creative capacity, independent or within the organization, for identification and realization of opportunities in order to produce new value or economic success (EC 2003). From these two definitions of entrepreneurship, it is clear that entrepreneurship is directly related to agricultural production, although individual farmer is not an entrepreneur in the meaning of Article 83 of the Companies Law (2015). However, according to the interpretation of the Ministry of Finance of the Republic of Serbia (2016), an individual who earns income by conducting agricultural and forestry activities, and income from the sale of agricultural and forest products acquires entrepreneur status by the force of the law or by their own commitment. Entrepreneurship is inherent to agribusiness complex.

The key problem of entrepreneurship in agricultural production and also in agribusiness complex is the lack of financial resources. In Serbia, we are faced with a large number of small individual entrepreneurs in agriculture and a few big ones. Access to finance as well as the range of loan products to the agricultural sector in Serbia is very poor (Veselinović, Drobnjaković, 2014). The situation can be improved by increasing the availability of capital from alternative sources of financing.

Alternative sources of financing entrepreneurial ventures represent sources of financial assets that are not common in Serbia and have a relatively important role in the world, especially in the area of financing beginners in entrepreneurship or farmers and other entrepreneurs who have lower credit ability in developing countries. The most important alternative funding sources are micro-credits, business angels, venture capitalists and crowdfunding. In developed countries, especially in the US, hedge funds give the financial support to the promising entrepreneurial ventures primarily through investments in securities (Njegomir, Cirić, 2013). In Serbia, according to the study (Erić et al., 2012), recently the participation of business angels and venture capitalist is present in a very small scale compared to other sources of funds and only in certain industries, especially information and communication industry. According to research (Erić et al. 2012) entrepreneurs in Serbia in all industries from non-bank sources of financing mainly use government assistance (70%), then micro-credits from non-bank entities (11,7%), help from friends and relatives (10%), business angels (5%) and finally venture capitalists (3.3%).

The goal of this paper is to analyze the possibilities to facilitate access to increased volume of capital of domestic entrepreneurs in agriculture by applying the financing sources that are applied in developing countries. In order to achieve goal, the subject of this paper is the analysis of alternative financing sources whose application or greater application in Serbia would enable a greater availability of capital and the improvement of entrepreneurial activities in agriculture and its competitiveness and profitability.

Methodology and data sources

Our research is focused on the analysis of the alternative sources of financing entrepreneurial undertakings in agriculture. As our kind reviews stated, there are up to 900,000 hectares that are uncultivated on the one hand and the lack of available capital on other. By using statistical analysis we explore the key problem of the lack of financial resources for financing agricultural ventures in alternative ways.

We compare four alternative sources of financing that can supplement traditional financing in various cases, by comparing foreign theoretical knowledge and empirical evidence in Serbia. We analyse the application of business angels, private equity investors, crowdfunding and microcredits as alternative sources of financing. The basic intent is to change the traditional view of available sources of financing and to foster more research in the application of alternative instruments that have been proved in developed or developing countries. The analysis of each alternative financing mechanisms, review of current achievements in other countries and comparative analysis of alternative mechanisms is done in order to determine what is done and what is needed to be done to improve the availability of financial resources of agricultural ventures.

Data are gathered from various trustfull sources. We use sources of various leading scientists in the field of agricultural economics and entrepreneurship, including Nobel prize winners among them. We base our conclusions on data from United Nations, Organisation for Economic Co-operation and Development, FAO and other sources.

Business angels

If the business idea does not require considerable financial resources, as is the case with local agricultural producers - entrepreneurs, and if it is not a type of business that will ensure the achievement of high profits, instead of venture capitalists, financial assets can provide business angels. Business angels are investors, wealthy individuals who place their capital in start-ups as well as in new established small entrepreneurs who are not able to provide funds for starting business in any other way.

Business angels are wealthy individuals who individually or trough associations invest their capital, knowledge and business contacts in development of business ideas with potential for rapid growth. In this case, the investments in producers of food products are more interesting for business angels. In the world, special place takes investments in organic production that has great potential for rapid realization of significant profit.

Although, there are not exact data, it is considered that business angels in US represent informal market of venture capital and that they also have the largest reserves of free capital for investments (Hisrich, Peters, Shepherd, 2008). One of the most famous business angels is Bill Gates, who placed the funds in a number of biotech start-up companies. It is estimated that each year over 100,000 independent investors finance between 30,000 and 50,000 entrepreneurs in total dollar amounts that range between 7 and 10 billion dollars (Hisrich, Peters, Shepherd, 2008).

Basic characteristics of business angels in the US are shown in table 1. Beside capital, business angels assign to entrepreneurs their own experience, skills and contacts in order to contribute in prosperity of entrepreneurs. Also, additional motives for investment include active participation in the entrepreneurial process, enjoying the fact that they are part of a successful investment and a sense of contributing to the development of society as a well (SBAN, 2016). Unlike in developed countries, in Serbia this form of financing of entrepreneurs is not significantly represented although there is Serbian Business Angels Network (SBAN, 2016).

Table 1. Characteristics of business angels

Demographic patterns and relations
Well educated, many have college education.
They are ready to finance entrepreneurs from any part of the world.
Most of the companies financed by them are at a distance of one day trip.
Most of them expect to play an active role in the venture that are funded.
A large number belong the Angel Business Club.
Characteristics of investments
The range of investments: \$10,000 - \$50,000
Average investment: \$ 175,000
One to two investments per year.
Companies that have advantages
The companies in its initial stages or under the age of 5 years are mainly funded.
The most interesting areas for investments:
Production: industrial / commercial products
Production: consumer products
Energy / natural resources
Services
Software
Expectations regarding the risk / return
Average five-year capital income of 10 times for the company in the beginning
Average five-year capital income 6 times for companies younger than 1 year
Average five-year capital income 5 times for businesses aged 1-5 years
Average five-year capital income for the company 3 times older than 5 years

The reasons for rejection of offers
Inadequate extent of risk in relation to the income.
Inadequate management team.
Lack of interest in the proposed area of operation.
Failure to reach a deal on the price.
The owners do not show adequate commitment.
Insufficient knowledge of the business area.

Source: Hisrich, Peters, Shepherd, 2008.

Business angels rarely have a direct contact with the company before they decide to invest, but at the same time often have experience in the industry in which they are investing. Financial benefits are the motive of most business angels. However, there are additional motives for investments, such as active participation in the entrepreneurial process, enjoying the fact that they are part of a successful investment and a sense of contributing to the development of society as well.

Capital of business angels is suitable source of funding for entrepreneurs in many reasons, such as (Erić et al., 2012):

- No refund of money, unlike a loan or leasing,
- beside capital, they can offer knowledge and experience in providing support for entrepreneurs,
- if the entrepreneur is developing and growing, they can also be a source of further financial investments and a stable financial operations and
- They improve the system of business operations and management of entrepreneurs by distributing their assets in them.

Venture capitalists

Venture capitalists are the source of financing entrepreneurs in their early stages of development of in later stages, when they need resources for further development. Thanks to the fact that they provide financial resources for the risky ventures and that their resources are bound to venture they are called venture capitalist.

Venture capitalist estimates whether a venture with a good business idea has a chance, if it has an innovative and entrepreneurial potential and business prospects to develop, grow and become competitive in order to enable the achievement of high rates of return on invested capital. Venture capitalists typically invest in those projects that may provide them 6 to 10 times more revenue compared to the investment during the five-year period, or in projects that can provide a return on investment of 45% (Mariotti, Glackin, 2016). Such profits cannot be produced in ordinary farms in Serbia, but some with rounded up organic production may be with high potential for growth. That also holds for agricultural producers of in demand organic food, which is higher priced than ordinary or not organic.

Venture capitalists will not invest in some entrepreneurial venture unless the condition of certain amount of annual turnover is fulfilled. It is common in the United States that the minimal turnover within five years is about \$ 25 million and that ideal turnover is higher than 50 million dollars and that at the same time has an annual growth rate of 30 to 50 percent, with a predicted profit of 20 percent before tax (Mariotti, Glackin , 2016). If the assessment is positive, the funds are invested in the entities which provide share in capital or shares, and along with that ownership and management rights and income on that basis.

Investors in venture capital on the basis of their investment bear all risks of business success or failure of the venture in which they invest. We emphasize that the risk of such investments is extremely high and investors expect high profits from these investments. Entrepreneurial capitalists get their earnings from selling shares to other investors or they wait entrepreneur to start initial public offering, when they get their earnings by selling shares. Private equity funds are similar to venture capitalists.

For venture capitalists and private equity funds is characteristic that they do not invest their own capital but they collect financial funds from a number of institutional and individual investors. Private investment funds are characterized by relatively high rates of return expected from entities and generally they range from 20 percent or more. They are mostly minority shareholders in capital. Mostly they are involved in strategic management, but they also can be included in operational management.

Table 2 shows the basic differences between venture capital or risk investors and business angels.

Table 2. Key differences between business angels and venture capital

Business angel	Venture capitalist
<ul style="list-style-type: none"> • Individual investor 	<ul style="list-style-type: none"> • Company or fund as an investor
<ul style="list-style-type: none"> • Invests in entrepreneurs in the beginning or in newly established business entities 	<ul style="list-style-type: none"> • Invests in business entities in early stages, especially with the rapid development
<ul style="list-style-type: none"> • They invest mostly in the range of 10-100 thousand pounds, and as a group may invest up to 1 million 	<ul style="list-style-type: none"> • They invest generally in amounts higher than million pounds.
<ul style="list-style-type: none"> • They have the experience and contacts 	<ul style="list-style-type: none"> • They have contacts
<ul style="list-style-type: none"> • They may require inclusion in business 	<ul style="list-style-type: none"> • They require participation in the Executive Board

Source: The Business Angel (2016).

Generally speaking, the entrepreneurial ventures in agriculture, agribusiness and other industries in the early stages, the most likely source of financing will be business angels. Venture capitalist may occur in the later stages of business when the entrepreneur is confirmed and when the initial revenues are generated.

Crowdfunding

Crowdfunding is essentially financing of agro-cultural producers and others across the agrobusiness chain by collecting financial resources from large number of people. The concept of “crowdfunding” is related to the one of “crowdsourcing”, which refers to the outsourcing to the “crowd” of specific tasks, such as the development, evaluation or sale of a product, by way of an open call over the internet (Howe, 2008). Crowdfunding provides cheaper and faster financing as entrepreneurs can go directly to investors, suppliers and customers for money at much lower interest rates than those of banks. Crowdsources may in fact have intrinsic motivations, such as the pleasure of undertaking the task or participating to a community, as well as extrinsic motivations, related to monetary rewards, career benefits, learning or dissatisfaction with the current products (Kleeman et al. 2008).

Crowdfunding as a form for financing entrepreneurs originated in Australia. First to implement crowdfunding was Australian Small Scale Offerings Board (2017) that from 2006 helped more than 200 businesses to raise more than 128 millions of US dollars. However, this form of financing was faster implemented by some western European countries, notably the UK as well as the USA. Numerous web sites for crowdfunding has been created as internet facilitated the growth of crowdfunding.

Crowdfunding can take the form of (OECD, 2015):

1. Donations, whereby contributors donate funds, mostly for charities and non-profit organisations, although for-profit organisations can also receive donations through this channel;
2. Reward or Sponsorship, whereby contributors receive a pre-defined reward, such as a small token of appreciation or some type of service, like a public acknowledgment for their contribution and marketing;
3. Pre-selling or pre-ordering, whereby investors provide funding to help produce some product or service and in return receive an early version of the product, or the product at a reduced price;
4. *Lending*, whereby investors receive the interest and the principal at the end of the lending period. There exist also crowd-lending forms based on the revenue-sharing principle, that is, where creditors are not paid interests at the end of the defined lending period, but rather an amount which includes an agreed share of the earnings, in case of good performance of the debtor.
5. *Equity*, whereby a privately-held company offers securities to the general public, through the medium of an online platform. Investors receive a share in the business and may acquire voting rights.

In agriculture and agribusiness, crowdfunding is usually used in developing countries as a form of donations from people of the same local community. Crowdfunding is a useful tool which can strengthen the relation between agri-food producers and consumers (Yoo,

Choe 2014). Rutten and Fanou (2015) the application of crowdfunding in agriculture see as a form of innovative and inclusive finance for the youth in agriculture.

Some form of crowdfunding is known in Serbia. Humanitarian fundraising is nothing else than donations. So, we are of the opinion that this form of entrepreneurship financing could be easily implemented in Serbia. Donations, sponsorships and pre-selling are already present in Serbia and for their development with the aim of entrepreneurship financing there would be any need for government regulation, as it would be for crowd-lending and offering securities to the general public, especially over the internet.

In agriculture entrepreneurship in Serbia crowdfunding could be applied using rural networks, cooperatives, agricultural fairs, internet web sites dedicated to agriculture and rural development. In either way, crowdfunding of agricultural producers will help them to bridge timing differences in the production cycle at least. Further benefit would be buying more land and linkage of husbandry and livestock breeding with production of various food products as is seen in developed economies. Additionally, rural areas could develop local food producers, like local dairy or production of various flour or corn products. In addition to the development of agriculture and rural areas such crowdfunding will benefit all people interested for such development in local communities, at national level as well as people around the world. For small, individual's investors it would be the opportunity to put their own money where "their opinions, beliefs, dreams and aspirations are" (Roocke, 2015).

Microcredits

Significant role in lending to farmers in some countries have a micro-credits. This type of loan is provided by microfinance institutions. Microfinance as a modality of providing financial services first developed in the field of loan providing or the so-called micro-credits, initially provided by non-profit organization Accion International in 1973 (Njegomir, 2011). In the eighties of the twentieth century microfinance become an important component of development and poverty reduction worldwide. The success of microfinance institutions in the provision of small loans started a revolution in financial services sector worldwide. Support of media has contributed to the increased interest of commercial institutions in this sector.

During the nineties, the models of microfinance become more financially sustainable, the regulatory environment in a number of countries became favorable for microfinance institutions, and the development of new technologies and delivery channels of financial services made it possible to significantly reduce the costs which enable profitability of small individual transactions. Those changes have created conditions and influenced the development of institutions in this sector in more than 100 countries. For example, about 3000 microcredit institutions were registered in 1998 in developing countries (UN 1998). The development of microfinance role continued during the first decade of the new millennium. Thanks to the rapid development of micro-credits and their positive role in social, economic and political processes (Fernando, 2006), the year

2005 was declared for the world-year of micro-credits by the General Assembly of the United Nations.

Based on the field research on microfinance in the rural farming communities in Remo Division of Ogun State, Nigeria, Nosiru (2010) found that micro-credits could have prospect in improving the productivity of farmers and contributing to uplifting the livelihoods of disadvantaged rural farming communities. In Serbia appeared microcredit funds that provide micro-credits to domestic farmers, usually in amounts ranging from 100.000 to 500.000 dinars. However, approval is done through commercial banks and that is why the use of those loans is more expensive than in other countries. Amendment of legislation that will allow offer of microcredit as a loan by the model of Mohammed Yunnus will allow easier and cheaper use of microcredit.

Engaging in microfinance sector proved to be profitable, which is evidenced by numerous examples, among them the BancoSol, a bank that was founded in Bolivia in the nineties and that was proclaimed for Bolivian bank of the year several years in a row on the basis of key financial indicators such as the rate of return on assets and capital and the quality of portfolio. One of the successful examples is the Grameen Bank, which was formed as a result of the experimental project in 1976 and established as a bank in 1983. The bank grants small loans for agricultural development and business mainly to women and the fact that the Bank and its founder Mohammed Yunnus won the Nobel Peace Prize in 2006 shows the significance of this bank. In the area of microfinance are present even the largest banks in the world such as Citigroup, Deutsche Bank, ING, etc.

Conclusion

In this paper, we have shown the key forms of financing starting entrepreneurial ventures, as well as existing in world in agricultural production and agricomplex. These sources, business angels, venture capitalists, micro-credits and crowdfundings, represent the opportunities for funding that are available to foreign entrepreneurs. Some of these alternative sources of funding are not present only in the developed countries. Micro-credits are also present in developing countries, in poor rural areas.

Having in mind the significant potential of agriculture and agricomplex in Serbia, as well as the fact of extremely high share of agriculture in gross domestic product, enabling the presence of alternative sources of funding to traditional banking and state aid would allow accelerated development of agriculture and also food industry. Therefore, alternative sources of funding are crucial especially in sectors in which the current funding mechanisms in Serbia does not provide sufficient funds or those funds are prohibitively expensive.

Social commitment in Serbia is stimulating startup entrepreneurial ventures in all sectors. Considering that agriculture and agribusiness sector have great possibilities, the development of alternative forms of financing is necessary for the improvement of its competitiveness which will ensure greater profitability, ability of self-employment the development of rural areas and at the end it will effect as a stimulator of economic

growth. The best way to solve problem of underemployment, especially among youth, and also of other social problems is the stimulation of entrepreneurship, especially in agriculture. The full capacity of entrepreneurship development in Serbia can be expected with the prior strengthening of alternative financing sources.

References

1. Australian Small Scale Offerings Board (2017): Internet platform for crowdfunding. Available at: <https://assob.com.au/Default.asp> (accessed 05.12.2017).
2. EC (2003): *Green Paper: Entrepreneurship in Europe*. Commission of the European Communities, 27 final, Brussels.
3. Erić, D.D. et al. (2012): *Finansiranje malih i srednjih preduzeća u Srbiji*. Privredna komora Srbije, Beograd.
4. Fernando, J.L. (2006): *Microcredit and empowerment of women: blurring the boundary between development and capitalism*. In J.L. Fernando (ed.): *Microfinance: Perils and prospects*, Abingdon, Oxfordshire, UK.
5. Hisrich, R.D., Peters, M.P. and Shepherd, D.A. (2008): *Entrepreneurship*. McGraw-Hill Companies, New York.
6. Howe, J. (2008): *Crowdsourcing: Why the Power of the Crowd Is Driving the Future of Business*. Crown Publishing Group, New York.
7. Kleeman F., Voss G.G. and Rieder K. (2008): *Un(der)paid innovators: the commercial utilization of consumer work through crowdsourcing*. Science, Technology & Innovation Studies, Vol. 4, No. 1, pp. 5-26.
8. Mariotti, S. and Glackin, C. (2016): *Entrepreneurship: Starting and Operating a Small Business*. Pearson, Harlow, UK.
9. Ministarstvo finansija Republike Srbije (2016): Available at: [http://www.mfin.gov.rs/UserFiles/File/misljenja/2013/Objasnjenje%20vodjenje%20poslovnih%20knjiga\(1\).pdf](http://www.mfin.gov.rs/UserFiles/File/misljenja/2013/Objasnjenje%20vodjenje%20poslovnih%20knjiga(1).pdf) (accessed 08.10.2016.).
10. Njegomir, V. (2011): *Mikroosiguranje*. Industrija, Vol. 39, No. 3, pp. 295-314.
11. Njegomir, V. and Ćirić, J. (2013): *The importance of hedge funds: The point of view of insurance companies and other institutional investors*. Strategic Management, Vol.18, No.1, 2013, pp. 37-46.
12. Nosiru, M.O. (2010): *Microcredits and Agricultural Productivity in Ogun State, Nigeria*. World Journal of Agricultural Sciences, Vol. 6, No. 3, pp. 290-296.
13. OECD (2015): *New Approaches to SME and Entrepreneurship Financing: Broadening the Range of Instruments*. Organisation for Economic Cooperation and Development, Paris, France.
14. Roocke, N. (2015): Crowdfunding - an option for projects in agriculture. Australian Canegrower. Available at: <http://search.informit.com.au/documentSummary;dn=666039688040090;res=IELAPA> (accessed 20.12.2016).

15. Rutten, L. and Fanou, S.L. (2015): *Innovative and Inclusive Finance for Youth in Agriculture*. In: A.K. Koira et al. (eds) *Africa Agriculture Status Report: Youth in Agriculture in Sub-Saharan Africa*, Alliance for a Green Revolution in Africa (AGRA), Nairobi, Kenya.
16. SBAN (2016): Serbian Business Angels Network. Available at: <http://sban.eu/portal/index.php/site/index> (accessed 29.11.2016.).
17. The Business Angel (2016): Difference between Angel Investors & Venture Capital. Available at: <http://www.thebusinessangel.org/difference-businessangel-venturecapital.html> (accessed 27.11.2016.).
18. UN (1998): *Bulletin on Eradication of Poverty*. United Nations, New York, November 1998. Available at: http://www.un.org/esa/socdev/poverty/documents/boep_05_1998_EN.pdf (accessed 03.12.2016.)
19. Venkataraman, S. (1997): *The distinctive domain of entrepreneurship research: An editor's perspective*. In J. Katz and R. Brockhaus (eds.), *Advances in Entrepreneurship, Firm Emergence, and Growth*, JAI Press, Greenwich, pp. 119–138.
20. Veselinović, B. and Drobnjaković, M. (2014): *Qualitative and Quantitative Analysis of Micro and Macro Aspects of Agricultural Finance*. *Economics of Agriculture*, Vol. 61, No. 3, pp. 771-787.
21. Yoo, Y.G. and Choe, Y.C. (2014): *Current Status of Korean Crowdfunding Industry and its Applicability to Agrifood Sector*. *Advanced Science and Technology Letters*, Vol. 49, pp. 213-221.
22. Zakon o privrednim društvima, „Sl. glasnik RS”, br. 36/2011, 99/2011, 83/2014 - dr. zakon i 5/2015.

ALTERNATIVNI IZVORI FINANSIRANJA PREDUZETNIČKIH PODUHVATA U POLJOPRIVREDI

Vladimir Njegomir⁴, Rajko Tepavac⁵, Nenad Ivanišević⁶

Rezime

Nedovoljnost internih izvora finansijskih sredstava i ograničenost pristupa eksternim izvorima kapitala, kao jedan od ključnih problema, domaći poljoprivredni proizvođači - preduzetnici uobičajeno opisuju visokom cenom kapitala, komplikovanim procedurama, odsustvom transparentnosti u pogledu rešavanja kreditnih zahteva i problema sa obezbeđenjem kredita. Cilj istraživanja ovog rada jeste analiza mogućnosti za olakšavanje pristupa povećanom obimu kapitala domaćih preduzetnika u poljoprivredi primenom izvora finansiranja koja se primenjuju u razvijenim zemljama za finansiranje preduzetništva. U nameri ostvarenja postavljenog cilja predmet istraživanja u radu čini analiza alternativnih izvora finansiranja čija bi primena ili veća primena u Srbiji omogućila veću raspoloživost kapitala poljoprivrednicima i svima u lancu agrobiznis kompleksa a time i unapređenje preduzetničkih aktivnosti, odnosno posledično veću konkurentnost i prihode domaćih poljoprivrednih proizvođača i svih širom agrobiznis kompleksa a indirektno ubrzajući privredni rast i povećanje blagostanja stanovništva..

Ključne reči: *preduzetništvo, poljoprivreda, mikrokrediti, poslovni anđeli, rizični kapitalisti, pojedinačne investicije.*

4 Dr Vladimir Njegomir, vanredni profesor, Univerzitet Union, Fakultet za pravne i poslovne studije dr Lazar Vrkatić, Bulevar oslobođenja 76, 21000 Novi Sad, Telefon: +381 64 139 3005, E-mail: vnjegomir@eunet.rs

5 Dr Rajko Tepavac, vanredni profesor, Institut za ekonomiku i finansije, Bulevar Mihajla Pupina 10 B/I, 11000 Beograd, telefon: 063/600217, e-mail: tepavac57@gmail.com

6 Dr Nenad Ivanišević, docent, Ministarstvo za rad, zapošljavanje, boračka i socijalna pitanja Vlade Republike Srbije, e-mail adresa: nenad.ivanisevic@gmail.com

THE PERFORMANCES OF COFFEE PROCESSORS AND COFFEE MARKET IN THE REPUBLIC OF SERBIA

Daniela Nuševa¹, Kristina Mijić², Dejan Jakšić³

Summary

The main aim of this paper is to investigate the performances of coffee processors and coffee market in Serbia based on the market concentration analysis, profitability analysis, and profitability determinants analysis. The research was based on the sample of 40 observations of coffee processing companies divided into two groups: large and small coffee processors. The results indicate that two large coffee processors have dominant market share. Even though the Serbian coffee market is an oligopolistic, profitability analysis indicates that small coffee processors have a significant better profitability ratio than large coffee processors. Furthermore, results show that profitability ratio is positively related to the inventory turnover and negatively related to the market share.

Key words: coffee processors, coffee market, market share, profitability.

JEL: Q13, M41.

Introduction

Coffee is one of the most significant internationally traded commodities. In many years it was ranked as the second traded in value on the foreign exchanges for producing countries, next to oil (Sereke-Brhan, 2010). The world coffee export approximately accounted US\$30.8 billion in 2015 (around 8.27 million tons), a decrease of 4% in comparison to 2014 (International Trade Centre, 2016). Coffee also represents an important source of export earnings for many of the world's least developed countries, so its export makes many of them vulnerable to exogenous shocks (International Coffee Organization, 2015).

Coffee is produced in more than 50 countries, particularly in South America, Africa, and Southeast Asia, but consumed as a beverage world widely. The total world production

- 1 Daniela Nuševa, Ph.D., Assistant, University of Novi Sad, Faculty of Economics in Subotica, Segedinski put no. 9-11, 24000 Subotica, Republic of Serbia, e-mail: nusevad@ef.uns.ac.rs
- 2 Kristina Mijić, Ph.D., Assistant, University of Novi Sad, Faculty of Economics in Subotica, Segedinski put no. 9-11, 24000 Subotica, Republic of Serbia, e-mail: mijick@ef.uns.ac.rs
- 3 Dejan Jakšić, Ph.D., Full Professor, University of Novi Sad, Faculty of Economics in Subotica, Segedinski put no. 9-11, 24000 Subotica, Republic of Serbia, e-mail: jaksicd@ef.uns.ac.rs

amounted 143.3 million 60 kg bags in 2015/16 crop year, and the major coffee producing countries were Brazil (43.2%), Vietnam (27.5%), Columbia (13.5%) and Indonesia (12.3%). The total global coffee consumption in 2015 was estimated 152.2 million 60 kg bags. The most developed countries are the largest consuming coffee markets with the total consumption of 81.2 million 60 kg bags, and individually EU (41.6%), US (24.4%) and Japan (7.7%) (International Coffee Organization, 2016). Furthermore, many countries and citizens depend on coffee production for income. Coffee plantation and coffee processing provides employment for over 100 million people across the globe (Jacob, 1998).

Due to the major role of coffee production for the economies, numerous researchers and institutions pay great attention analyzing the performances of coffee producers and the performances of the coffee market. The analysis of coffee processors performances usually includes the analysis of profitability, profitability determinants, the analysis of the trend in coffee production and coffee sales (Mohammed et al., 2013; Woodill et al., 2014). For the sustainable development of the coffee processing industry, balanced business performances of coffee processors are highly favorable. The performances of the coffee market are investigated in terms of market concentration (Euromonitor, 2016; International Coffee Organization, 2014). The aim of market concentration analysis is to define the characteristics of the market. Depending on the market share of the leading and other companies in industry, the market can range from perfect competition to oligopoly (Vuković et al. 2015). Concentrated markets can impose significant barriers to entry and better market position of smaller companies. In the case of a high concentration and a very limited market, the choice of consumers is highly reduced. The upbringing of modern market structure for securing intensive and effective competition between economic subjects is an imperative of every country, especially developing ones (Mihajlović et al., 2016).

The Serbian coffee market is small in comparison to the world coffee market and in comparison to the developed countries coffee markets. Beside this, import of not roasted coffee represents import of one of the main commodities in Serbia (Statistical Office of the Republic of Serbia, 2016). The market of coffee processors in Serbia consists of two large coffee processors (Grand Prom and Strauss Adriatic) and around 200 small coffee processors. It can be said that the Serbian coffee market is characterized by the competition of two groups coffee processors: large and small coffee processors. The aim of this paper is to investigate the differences of performances of large and small coffee processors in Serbia during the period 2012-2015. This research is designed to analyze the trend of coffee market concentration, the profitability of large and small coffee processors, and to investigate which factors determinate the profitability of coffee processors in Serbia.

An overview of the coffee market in Serbia

Serbia is a country in which there is no production of coffee, but only roasting, trade, and consumption. Serbia imported 32,686 tons of coffee in 2015 accounted US\$83,349 thousand (*Table 1*). Import growth in quantity between 2011 and 2015 was negative

-1.71%. The Serbian share in world imports represented 0.3% in 2015 (International Trade Centre, 2016).

On the other hand, Serbia's coffee export in 2015 amounted 1,121 tons or US\$5.78 thousand, which represents 11.43% export growth in quantity between 2015 and 2014, but -3.91% export growth values (*Table 1*). The Serbian share in world exports is not significant. (International Trade Centre, 2016).

Table 1. Coffee trade balance in Serbia during the 2011-2105

Year	Import (000 USD)	Import (tons)	Export (000 USD)	Export (tons)	Trade balance (000 USD)
2011	<u>Top of Form</u> 109,299	<u>Top of Form</u> 33,254	<u>Top of Form</u> 3,314	<u>Top of Form</u> 435	<u>Top of Form</u> -105,985
2012	107,651	34,498	7,144	791	-100,507
2012 / 2011	-1.51%	3.74%	115.57%	81.84%	-5.17%
2013	87,360	32,689	7,255	795	-80,105
2013 / 2011	-20.07%	-1.70%	118.92%	82.76%	-24.42%
2013 / 2012	-18.85%	-5.24%	1.55%	0.51%	-20.30%
2014	76,664	30,433	6,015	1,006	-70,649
2014 / 2011	-29.86%	-8.48%	81.50%	131.26%	-33.34%
2014 / 2013	-12.24%	-6.90%	-17.09%	26.54%	-11.80%
2015	83,349	32,686	5,780	1,121	-77,569
2015 / 2011	-23.74%	-1.71%	74.41%	157.70%	-26.81%
2015 / 2014	8.72%	7.40%	-3.91%	11.43%	9.79%

Source: Authors calculation (based on International Trade Centre, 2016)

Coffee consumption in Serbia amounted 575 thousand 60 kg bags in 2015/16. Roasted and ground (fresh, black, traditional, Turkish) coffee have had a market share of over 90% of the overall coffee consumption in Serbia for many decades. Although fresh coffee consumption has reached the saturation point, a fact is that it is still more popular in Serbia than instant coffee. Instant coffee has been noted in a segment named „mixes“ (different mixtures of coffee milk, sugar, and flavors which give the final product aroma and taste), unlike the segment of pure soluble instant coffee in developed countries. Multinational coffee manufacturers (Nestle SA and Kraft Foods) dominated the sector of instant coffee until 2007 when the two large manufacturers of fresh coffee in Serbia (Grand Prom and Strauss Adriatic) entered the segment and achieved a huge success based primarily on their positive images (Bogosavljević Jovanović, Radojičić, 2016). Coffee companies make great efforts and invest a lot in marketing, branding, and differentiation of instant coffees, especially as they are more profitable. Installation of vending machines, attractive coffee shops, ready-to-drink coffees and other innovations have also influenced Serbian consumer habits and preferences. So, instant coffee

consumption recorded positive growth in the previous few years (9% in quantity and 13% in value in 2015).

In recent decades coffee roasters and consumers in the developed countries are switching to sustainable coffees, certified higher-quality coffees produced in accordance with certain environmental, social and/or economic standards (Organic, Fairtrade, Rainforest Alliance, UTZ Certified, etc.). There is still no significant consumer interest in Serbia for these coffees mostly because of the weaker purchasing power, and the lower level of awareness, information and education (Nuševa, 2012).

Materials and methods

The aim of this paper is to review the performances of coffee processors and Serbian coffee market. For this purpose data from the financial statements of companies registered as coffee processors in the period 2012-2015 years were used. The data were collected from the financial statements of coffee processors from the database Amadeus, the database of Business Registry Agency and market research conducted by Euromonitor International Ltd. The research sample includes 40 companies observations divided into two groups. The first group consists of 8 observations of the two large companies in the field of coffee processing, while the second group consists of 32 observations of 8 small coffee processors in Serbia.

The performances research of coffee processors in Serbia is divided into three sections:

- Market concentration analysis,
- Profitability analysis and
- Identification of the profitability determinants of coffee processors.

Market concentration analysis

Market concentration represents an important proxy for competition among companies in an industry. Analysis of the market concentration indicates to the characteristics of a specific market, which can be in a range from perfect competition to oligopoly, or even monopoly when one company achieves total revenue at a specific market. The aim of the analysis of coffee market concentration in Serbia is to investigate the characteristics of the competition among the coffee processors and to analyze the trend of market concentration during the 2012-2015. According to this the following hypothesis is defined:

H₁: Small number of large coffee processing companies have a dominant position on the market in Serbia.

The concentration on different markets can be measured using a several statistical and econometric methods, such as the Herfindahl-Hirschman index (*HHI*), Concentration ratios (*CR_n*), Gini coefficient, Linda index, Hannah-Kay index, Hall Tideman index etc. According to the availability of data, the concentration of coffee processing companies was measured by Concentration ratio. Oster (1999) defines the concentration ratio as

the percentage of industry sales or employment accounted for the largest few firms in the industry.

$$CR_n = \sum_{i=1}^n S_i$$

Where:

CR – concentration ratio

n - the number of firms

S_i - market share

Concentration ratios range from 0 to 100 percent. Since there are two large coffee processors in Serbia, concentration ratios are measured using CR_2 model. Market concentration can be measured by several variables: operating revenue, total assets, capital, the number of employees etc. According to the Federal Trade Commission in the USA (Ward, 2005) the industry is:

- Unconcentrate – if small number of companies produce less than 25% of industry output ($CR_n < 0.25$),
- Moderately concentrated – if small number of companies produce at least 25% and less than 50% of industry output $0.25 \leq CR_n < 0.50$,
- Concentrated – if the small number of strongest companies in the industry produce at least 50% of industry output ($CR_n \geq 0.50$)

Profitability analysis

Profitability, as one of the most important indicators of business success, indicates the earning power and business success of a company (Kimmel et al., 2012). There are different indicators of profitability in the economic theory and practice and in this paper the following are selected:

- Return on Assets (ROA) - measures a company's success in using assets to earn net income.
- Return on Equity (ROE) - measures how much profit (net income) a company generates with the shareholder's equity.
- Profit Margin (PM) - indicates net income per unit of sales.
- Gross Margin (GM) – represents the portion of revenue that the company retains as gross profit.

The *Table 2* provides an overview of the profitability indicators.

Table 2. The overview of the profitability indicators

Profitability indicators	Calculation	Unit	Reference Value
Return on Assets (ROA)	NI/TAavg	Ratio	≥ 0.1
Return on Equity (ROE)	NI/(C+R)	Ratio	≥ 0.15
Profit Margin (PM)	NI/NS	Ratio	≥ 0
Gross Margin (GM)	GI/NS	Ratio	≥ 0

Source: Author's illustration (according to Kimmel et al., 2012; Walsh, 2008)

Where:

NI – net income

TAavg – total assets average

C – capital

R – reserves

NS – net sales

GI – gross income

The aim of profitability analysis is to examine whether there is a significant difference in the level of profitability that generate coffee processors in the market of Serbia. For the sustainable development of the coffee processing industry, balanced business performance of coffee processors is highly favorable. Significant fluctuation in profitability can negatively affect the development and growth of companies, as well the market competition. According to this aim, the following hypothesis is set:

H₂: There are no significant differences in the profitability between large and small coffee processing companies.

The identification of the profitability determinants of coffee processors

In order to examine which factors influence the profitability of coffee processors in Serbia, dependent and independent variables are defined. Profitability as a dependent variable is represented by the indicator return on assets. The group of independent variables consists of size, current ratio, leverage, growth, inventory turnover and market concentration.

The size of companies can be measured using several proxies, such as natural logarithm of assets, sales, and employees. In this study, size is measured as the natural logarithm of the assets. Larger companies have better access to capital markets and lower cost of borrowing (Whited, 1992), and should have a higher turnover ratio and therefore higher ability to generate higher income (Titman, Wessels, 1988). Even though it is expected that size and profitability are positively related, there are opposite findings among studies. Stierwald (2010), found that the size of the company is positively related to profitability. On the other side, there are findings that confirm the inverse relationship between the size of companies and profitability (Goddard et al. 2005, Jensen and Murphy, 1990).

The current ratio as a ratio of current assets and current liabilities indicate the ability of company to pay current liabilities at time. Healthy companies should have this ratio at the minimum level of 2.0. The research results about the influence of current ratio on profitability are also mixed. Kuntluru et al. (2008) found that there is a positive relationship between current ratio and ROA as the indicator of profitability. Pratheepan (2014) found out that current ratio does not have any influence on profitability.

Leverage indicates the level of debt and can be measured by using different indicators, such as ratio of total debt to total equity, or ratio of total debt to total assets. In this study, leverage was measured by the ratio of total debt to total assets. If the level of debt is higher more resources are required to pay the debt, and that situation can influence negatively profitability. If the additional debts are not used in investment purpose, there is a high risk of decreasing profitability ratio. Asimakopoulos et al. (2009) found out that leverage is negatively correlated to profitability. On the other side, Burja (2011) found out that leverage is positively correlated to profitability, which is explained as the use of debt in good investment activities.

Growth measures the ability of firm to achieve a higher amount of sales in the current period in comparison to the previous period. If the company achieves growth in sales, that means it provides additional income for the current period. Therefore it is expected that growth affects profitability positively (Asimakopoulos et al. 2009).

Inventory plays a significant role in the growth and survival of the companies in the sense that ineffective and inefficient management of inventory will mean that the organization loses customers and sales will decline. An efficient management of working capital through proper and timely inventory management ensures a balance between profitability and liquidity trade-offs (Aminu, 2012). Well managed inventories can give companies a competitive advantage and result in superior financial performance (Isaksson, Seifert, 2013). Inventory ratio can be represented as the ratio of cost of goods sale and cost of material on the one side and average inventory on the other side. Also, inventory ratio can be represented as the ratio of sales and inventory, which was used in this study. The research results indicate a positively correlation between the companies inventory management and profitability in brewery industry (Eneje et al., 2012), sugar industry (Lwiki et al., 2013).

The market share can be also positively and negatively related to the level of profitability. A higher level of concentration means a larger amount of revenue, as a positive part of net income. The research results show a positive relationship between concentration ratio and profitability usually in the banking sector (Molyneux, Thornton, 1992). On the other side, higher concentration level can be related to the lower price policy, or higher other expenses, which can lead to the lower profitability ratio. Bourgeois et al. (2014) found a negative relationship between concentration ratio and profitability in food and drug stores, insurance, as well in health care industries.

According to the aim of the investigation of the profitability determinants of coffee processors, the following hypothesis is set.

H_3 : The characteristics of coffee processing companies (size, current ratio, leverage, growth, inventory turnover, market concentration) have a significant impact on profitability.

In order to test the hypothesis H_3 , the regression analysis is used (according to Field, 2009).

$$ROA = \beta_0 + \beta_1 SIZ + \beta_2 CUR + \beta_3 LEV + \beta_4 GRO + \beta_5 INT + \beta_6 CR + \varepsilon_i$$

Where:

ROA – return on assets

SIZ – Size

CUR – current ratio

LEV – leverage

GRO – growth

INT – inventory turnover

CR – concentration ratio

Results

The results of market concentration analysis

The results of Serbian coffee market concentration, based on the operating revenue, total assets, equity, and the number of employees, are present in the following table.

Table 3. Market concentration of coffee processors.

Variable	CR _i				
	2012	2013	2014	2015	2012-2015
Operating revenue	78%	74%	72%	66%	73%
Total assets	91%	91%	90%	90%	90%
Equity	89%	90%	91%	90%	90%
Number of employees	-	-	-	64%	64%

Source: Authors calculation (based on Amaedus, 2016; Business Registry Agency, 2016; Euromonitor, 2016).

The market concentration analysis of coffee processors in Serbia indicates the existence of the strong oligopoly according to all variables. Two large companies (Grand Prom and Strauss Adriatic) have a dominant market share. Concentration index Cr_2 based on the operation revenue shows that two large coffee processors collected about 73% of total revenue during the period 2012-2015. According to this hypothesis H_1 is accepted, and it can be concluded that a small number of large coffee processors have a dominant position in the Serbian market. Furthermore, there is a negative trend of market concentration index. Operating revenue of two large coffee processors decreased for about 10% in 2015 in comparison to 2012.

The results of profitability analysis of coffee processors

Table 4 represents the results of coffee processors profitability during the period 2012-2015.

Table 4. Profitability of coffee processors in Serbia

Profitability indicator	2012	2013	2014	2015	2012-2015
ROA					
Large coffee processors	-6.17	6.70	2.31	-2.64	0.05
Small coffee processors	4.06	5.11	3.74	5.01	4.48
Total	2.01	5.43	3.45	3.48	3.59
ROE					
Large coffee processors	-9.59	16.89	12.98	-4.58	4.20
Small coffee processors	11.89	16.67	12.30	9.28	12.03
Total	1.37	16.70	12.64	4.78	8.81
PM					
Large coffee processors	-6.41	5.94	2.68	-0.92	0.32
Small coffee processors	1.87	2.14	2.32	2.66	2.25
Total	0.21	2.90	2.39	1.94	1.86
GM					
Large coffee processors	-7.38	6.83	3.08	-1.06	0.36
Small coffee processors	2.15	2.47	2.67	3.06	2.59
Total	0.24	3.34	2.75	2.24	2.14

Source: Author's calculation

Profitability analysis indicates that coffee processors have in average positive net income. Profitability analyses based on ROA indicate that coffee processors in Serbia achieve an average profit of RSD3.60 per RSD100 invested assets. Comparative profitability analysis of the large and small coffee processors indicates that small processors achieved better business results. The group of small coffee processors achieved 4.48RSD per 100RSD invested assets, and RSD12.03 per RSD100 invested capital in the period 2012-2015. On the other hand, the dominant coffee processors realized RSD0.05 per RSD100 invested assets, and RSD4.20 of profit per RSD100 invested capital. The group of small coffee processors has more stable profitability during the observed period. On the other hand, large coffee processors have significant fluctuations in the level of profitability. Large coffee processors achieved negative results in 2012 and 2015 primarily from operating activities. The analysis of profit margin and gross margin indicates that the large coffee processors achieved an average RSD0.32 of net income or RSD0.36 gross income per RSD100 of sales. On the other hand, small coffee processors achieved an average RSD2.25 of net income, or RSD2.59 of gross income, per RSD100 of sales. Descriptive profitability analysis shows that small coffee processors achieved better profitability, according to all profitability indicators. In order to investigate if the difference between the profitability of large and small coffee processors is significant, multivariate test MANOVA was realized. The following table (Table 5) shows the results of MANOVA.

Table 5. Results of MANOVA – difference between profitability of large and small coffee processors

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Profitability	Pillai's Trace	0.294	5.001	3.000	36.000	0.005	0.294

Source: Authors calculation

Based on the result of Pillai's Trace p -value which is less than 0.05 it can be concluded that there is a significant difference between the profitability of the large and small coffee processors in Serbia. Furthermore, the test of between-subject effects indicates that there is the statistically significant difference in the profitability indicator ROA between this two groups of companies (Table 6). According to this findings, hypothesis H_2 is rejected, and the alternative hypothesis is accepted, that there are significant differences in the profitability between the large and small coffee processors.

Table 6. Test of between-subjects effects

Source	Profitability Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Profitability	ROA	125.974	1	125.974	7.267	0.010	0.161
	ROE	0.914	1	0.914	0.002	0.961	0.000
	PM	23.862	1	23.862	2.462	0.125	0.061
	BP	31.557	1	31.557	2.462	0.125	0.061

Source: Author's calculation

The results of profitability determinants of coffee processors in Serbia

The values of independent profitability variables are presented in the following table (Table 7).

Table 7. Independent variable of profitability (size, current ratio, leverage, growth, turnover, concentration index)

Independent profitability variable	2012	2013	2014	2015	2012-2015
Size (SIZ)					
Large coffee processors	4.75	4.75	4.70	4.72	4.73
Small coffee processors	3.26	3.30	3.30	3.33	3.30
Current ratio (CUR)					
Large coffee processors	2.15	3.38	2.36	1.92	2.45
Small coffee processors	1.22	1.83	2.24	1.38	1.67
Leverage (LEV)					
Large coffee processors	0.63	0.59	0.59	0.56	0.59
Small coffee processors	0.96	0.96	0.88	0.87	0.92

Independent profitability variable	2012	2013	2014	2015	2012-2015
Growth (GRO)					
Large coffee processors	0.03	-0.01	-0.10	0.05	-0.01
Small coffee processors	0.07	0.11	0.02	0.10	0.07
Inventory Turnover (INT)					
Large coffee processors	3.97	5.10	4.76	6.38	5.05
Small coffee processors	5.77	5.52	4.62	5.66	5.40
Concentration ratio (CR)					
Large coffee processors	78%	74%	72%	66%	73%
Small coffee processors	22%	26%	28%	34%	27%

Source: Author's calculation

Current ratio indicates that the small coffee processors have a problem to pay short-term liabilities, while large coffee processors don't have a risk of payment short-term liabilities.

Leverage analysis shows that coffee processors in Serbia have a problem of high level of liabilities. Small coffee processors are financing their business activities with 92% of liabilities, and with 8% capital. A small share of capital in financing business activities is a result of the regulation that requires minimum initial capital of RSD100. Large coffee processors are financing their activities 60:40 in favor of external source of financing. Even though the large coffee processors possess a greater amount of capital, they still have leverage higher than the reference value of 0.5.

Growth sale analysis shows that the small coffee processors have better growth sale rate (7%), while the growth sale rate of the large coffee processors is negative (-1%) during the period 2012-2015. Operating revenue of large coffee processors in 2014 is for about 10% less than in 2013. The decrease in operating revenue of the large companies and the growth of operating revenues of the small processors, is accompanied by the changes in the level of market share among the coffee processors. Inventory turnover ratio shows the similarity in inventory management between large coffee processors (5.05) and small processors (5.40).

In order to investigate which determinants are associated with the level of profitability the linear regression analysis was conducted. *Table 8* presents the results of enter regression model of profitability factors on the coffee market in Serbia.

Table 8. Results of regression analysis of profitability determinants

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		Std. Error	Beta			
ROA Dependent variable	(Constant)	-11.865	8.636		-1.374	0.177
	SIZ	4.880	3.133	0.716	1.558	0.127
	CUR	0.001	0.428	0.000	0.003	0.998
	LEV	-2.272	3.463	-0.131	-0.656	0.515
	GRO	0.026	3.768	0.001	0.007	0.995
	INT	0.510	0.205	0.390	2.485	0.017
	CR	-29.017	13.407	-1.101	-2.164	0.036
R ² = 0.293						
R ² adj = 0.190						

Source: Author's calculation

The results indicate that profitability of coffee processing companies is significantly correlated with the inventory turnover and concentration ratio. Profitability of coffee processors is not significantly related to the other characteristics such as size, current ratio, leverage and sales growth. According to this results, hypothesis H_3 is partial accepted. Inventory turnover and profitability are positively related, and that means that higher turnover ratio and good inventory management will increase profitability. Results show a negative relationship between concentration and profitability of coffee processors. Even though large coffee processors collect a higher amount of revenue, profitability is on the much lower level than the profitability of the other smaller coffee processing companies in Serbia. The reason of this negative relationship between concentration and profitability of dominant coffee processors can be explained by very low and negative growth rate, increasing the operating and other expenses.

Conclusion

Regardless the fact that the Serbian coffee market is small in relation to the world and the developed countries coffee markets, not roasted coffee represents a significant import commodity, accounted approximately more than 31,000 tons per year during 2011-2015. Two large and around 200 small companies are involved in processing not roasted coffee in Serbia, so there is a competition between these two groups of coffee processors on the market. The market concentration analysis indicates that the large coffee processors have a dominant position, achieving about 73% of total revenue during 2012-2015. Furthermore, there is a negative trend of market concentration index, which points toward increasing competition among the coffee processors. In spite of the dominant market share of the two large coffee processors, the results of the profitability analysis indicates that the small coffee processors had a higher profitability level and a better and more stable profitability indicators, due to the decreasing operating revenue, decreasing market share, and increasing operating expenses which the large coffee

processors have faced during 2012-2015. The operating revenue of the small coffee processors recorded a constant average positive growth during the same period.

The results also indicate that inventory turnover and market share are the two crucial determinants of coffee processors profitability in Serbia. Inventory turnover and profitability are positively related, while market share and profitability are negatively related. Achieving stable business performances at the coffee market requires that the large coffee processors should solve the problem of decreasing operating revenue, and increasing operating expenses, while small coffee processors should solve the problem of low current ratio and high leverage.

Although fresh coffee consumption still dominates in the overall coffee consumption in Serbia, it has reached the saturation point. Retail volume sales of fresh coffee are declining and this trend is expected to be continued. In order to strengthen their competitive position, all coffee processors should invest more in the growing market segment of instant coffee. Drivers that stimulate increased instant coffee consumption are: changing coffee drinking habits, diversity, convenience, innovations, well-known brands, etc. The coffee market in developed countries has gone through a “latte revolution” and certified coffees are gaining increasing retail volume sales. It is still too early for coffee processors in Serbia to introduce certified coffees, but they should consider the perspectives of involving socio-economical and environmental standards in their business activities.

References

1. Amadeus. (2016): *Database*. EUI, Florence, Italy, (available at: <http://www.eui.eu/Research/Library/ResearchGuides/Economics/Statistics/DataPortal/AmadeusBvD.aspx>)
2. Aminu, Y. (2012): *Determinants of Inventory Managements as a Component of Working Capital in Ensuring Corporate Profitability-A Conceptual Approach*. Research Journal of Finance and Accounting, vol. 3, no. 11, IISTE, pp. 58 – 61
3. Asimakopoulos, I., Samitas, A., Papadogonas, T. (2009): *Firm-specific and economy wide determinants of firm profitability-Greek evidence using panel data*. Managerial Finance, vol. 35, no. 11, Emerald, England, pp. 929-940.
4. Bogosavljević Jovanović, M., Radojičić, Z. (2016): *Consumer Behaviour in the New Products Management in Serbia*. Management, no. 2016/79, FON, Belgrade, Serbia, pp. 27-36.
5. Bourgeois, L. J., Ganz, A., Gonce, A., Nedell, K. (2014): *Profitability of industries and firms over time*, Journal of Strategy and Management, vol. 7, no. 3, Emerald, England, pp. 210 – 225.
6. Burja, C. (2011): *Factors influencing the company's profitability*. Annales Universitatis Apulensis Series Oeconomica. vol. 13, no. 2, Alba Lulia, Romania, pp. 215-224.
7. Business Registry Agency. (2016): *Database*. BRA, Belgrade, Serbia, (available

- at: <http://apr.gov.rs>)
8. Eneje, C., Nweze, A., Udeh, A. (2012): *Effect of efficient inventory management on profitability: evidence from selected brewery firms in Nigeria*, International Journal of current Research, vol. 4, IJCR, pp. 350-354
 9. Euromonitor. (2016): *Coffee in Serbia*. Euromonitor, London, England, (available at: <http://www.euromonitor.com>)
 10. Field, A. (2009): *Discovering statistics using SPSS*, Sage Publication Ltd, London, England.
 11. Goddard, J., Tabakoli, M., Wilson, J. (2005): *Determinants of profitability in European manufacturing and services: evidence from a dynamic panel model*, Applied Financial Economics, vol. 15, no. 18, Taylor & Francis, London, England, pp. 1269-1289.
 12. International Coffee Organization. (2016): *Historical Data on the Global Coffee Trade*, International Coffee Organization, London, England, (available at: http://www.ico.org/new_historical.asp?section=Statistics)
 13. International Coffee Organization. (2015): *Sustainability of the coffee sector in Africa*, International Coffee Organization, London, England, (available at: <http://www.ico.org/documents/cy2014-15/icc-114-5e-overview-coffee-sector-africa.pdf>)
 14. International Trade Centre. (2016): *Trade statistics for international business development*. International Trade Centre, Geneva, Switzerland, (available at: http://www.trademap.org/Country_SelProduct.aspx)
 15. Isaksson, O. H. D., Seifert, R.W. (2014): *Inventory leanness and the financial performance of firms*, Production Planning & Control: The Management of Operations, vol. 25, no. 12, Taylor & Francis, USA, pp. 999-1014
 16. Jacob, H. E. (1998): *Coffee: the epic of a commodity*, N.J Burford Books, Short hills, USA.
 17. Jensen, M. C., Murphy, K. J. (1990): *Performance pay and top-management incentives*. Journal of Political Economy. vol. 98, no. 1, The University of Chicago Press Journals Division, Chicago, USA, pp. 225-264.
 18. Kimmel, P., Weygandt, J., Kieso, D. (2012): *Accounting*, John Wiley, New Jersey, USA.
 19. Kuntluru, S., Muppani, V. R., Khan A. M. (2008): *Financial performance of foreign and domestic owned companies in India*. Journal of Asia Pacific Business, vol. 9, no. 1, Taylor & Francis, London, England, pp. 28-54.
 20. Lwika, T., Ojera, P., Mugenda, N., Wachira, V. (2013): *The impact of management practice on financial performance of sugar manufacturing firms in Kenya*, International Journal of Business, Humanities and Technology, vol. 3, no. 5, Center for Promoting Ideas, USA, pp. 75-87.
 21. Mihajlović, M., Krstić, S., Šegrt, S., Pavlović, D., Jovanović, D., Simeunović, T. (2016): *Economic analysis of the influence of milk market concentration on procurement efficiency in the defense system*. Economics of Agriculture. no. 3,

- Institute of Agricultural, Belgrade, Serbia, pp. 973-985.
22. Molyneux P., Thornton. J. (1992): *The determinants of European bank profitability*, Journal of Banking and Finance, vol. 16, no. 6, Elsevier, Amsterdam, Netherlands, pp. 1173-1178.
 23. Nuševa, D. (2012): *Institutional regulation of the world coffee market – crisis and perceptives*, doctoral dissertation, University of Novi Sad, Faculty of Economics in Subotica, Serbia.
 24. Oster, S.M. (1999): *Modern Competitive Analysis*, Oxford University Press, Oxford, England.
 25. Pratheepan, T. (2014): *A Panel data analysis of profitability determinants: Empirical results from Sri Lankan manufacturing companies*, International Journal of Economics, Commerce and Management. vol. 2, no. 12, IJECM, Rochester, United Kingdom, pp. 1-9
 26. Sereke-Brhan, H. (2010): *Coffee, Culture, and Intellectual Property: Lessons for Africa from the Ethiopian Fine Coffee Initiative*. The Pardee Papers, no. 11, Boston University, pp. 1-37.
 27. Statistical Office of the Republic of Serbia. (2016): *Statistical Yearbook*. Statistical Office of the Republic of Serbia, Belgrade, Serbia.
 28. Stierwald, A. (2010): *The causes of profit heterogeneity in large Australian firms*. Working paper No. 7/10. Melbourne Institute of Applied Economic and Social Research, University of Melbourne, Melbourne, Australia.
 29. Titman, S., Wessels, R. (1988): *The determinants of capital structure choice*. Journal of Finance. vol. 43, John Wiley & Sons, Hoboken, USA, pp. 1-19.
 30. Vuković, B., Mijić, K., Spahić, N. (2015). *Concentration of Tobacco Market: Evidence from Serbia*. Economics of Agriculture, no. 2, Institute of Agricultural, Belgrade, Serbia, pp. 385-398.
 31. Walsh, C. (2008): *Key Management Ratios*, Prentice Hall, London, England.
 32. Ward, P. (2005): *Federal Trade Commission – law, practice and procedures*, Law journal press, New York, USA.
 33. Whited, T. (1992): *Debt, liquidity constraints and corporate investment: evidence from panel data*. Journal of Finance. vol. 47, John Wiley & Sons, Hoboken, USA, pp. 1425-1460.

PERFORMANSE PRERAĐIVAČA KAFE I TRŽIŠTA KAFE U SRBIJI

Daniela Nuševa⁴, Kristina Mijić⁵, Dejan Jakšić⁶

Rezime

Cilj rada je istraživanje performansi prerađivača kafe i tržišta kafe u Srbiji na bazi analize tržišnog učešća, analize profitabilnosti i identifikacije determinant profitabilnosti. Istraživanje je bazirano na uzorku od 40 opservacija preduzeća prerađivača kafe podeljenih u dve grupe: veliki i mali prerađivači kafe. Rezultati ukazuju da dva velika prerađivača kafe imaju dominantno tržišno učešće. Iako se tržište kafe u Srbiji ocenjuje kao oligopolno, analiza profitabilnosti ukazuje da mali prerađivači kafe imaju značajno bolju profitabilnosti u odnosu na velike dominantne prerađivače kafe. Dalje, rezultati istraživanja ukazuju da je profitabilnost prerađivača kafe u značajno pozitivnoj vezi sa obrtom zaliha i negativnoj vezi sa tržišnim učešćem.

Ključne reči: prerađivači kafe, tržište kafe, tržišno učešće, profitabilnost.

4 Dr Daniela Nuševa, Asistent, Univerzitet u Novom Sadu, Ekonomski fakultet u Subotici, Segedinski put br. 9-11, 24000 Subotica, Srbija, E-mail: nusevad@ef.uns.ac.rs

5 Dr Kristina Mijić, Asistent, Univerzitet u Novom Sadu, Ekonomski fakultet u Subotici, Segedinski put br. 9-11, 24000 Subotica, Srbija, E-mail: mijick@ef.uns.ac.rs

6 Redovni profesor, dr Dejan Jakšić, Univerzitet u Novom Sadu, Ekonomski fakultet u Subotici, Segedinski put br. 9-11, 24000 Subotica, Srbija, E-mail: jaksicd@ef.uns.ac.rs

MEASURES TO SUPPORT THE DEVELOPMENT OF ORGANIC FARMING IN THE EU AND SERBIA¹

Svetlana Roljević Nikolić², Predrag Vuković³, Biljana Grujić⁴

Abstract

Aim of this paper work is analyzing the situation in the sector of organic agriculture, as well as system of support that this production provides in the European Union and Serbia. Organic farming shows a dynamic process of growth and development, especially in economically developed countries. In the past ten years, the area under organic production in the EU increased by 70%, the number of certified producers increased by 60%, while the total market value doubled. On the other hand, the growth and development of organic agriculture in Serbia is very slow. Currently, the area under organic production accounted for only 0.4% of total utilized agricultural area, while in this mode of food production certified 0.3% of the total number of farms.

Intensive growth of organic farming in the EU provides a stable support both in terms of rate and financial resources, while in Serbia has been changed not only amount of support from year to year but also types of support. On this basis, it can be concluded that a stable government support is crucial for boosting growth and improving the sector of organic agriculture.

Key words: *organic agriculture, agricultural policy, support measures*

JEL: *Q14, Q15, Q18*

-
- 1 Paper work is part of the project III 46006 – “Sustainable agriculture and rural development in function of Republic of Serbia strategic goals achievement within the Danube region”, and project 179028 „Rural work market and rural economics of Serbia - diversification of income and decrease of rural poverty“ financed by the Ministry of Education and Science Republic of Serbia, member of researching team, period 2011-2014.
 - 2 Svetlana Roljevic Nikolic Ph.D. Research associate, Institute of Agriculture Economics, Belgrade, Volgina Street no. 15, 11060 Belgrade, Serbia, E-mail: svetlana_r@iep.bg.ac.rs, Phone: +381 11 69 72 858.
 - 3 Predrag Vukovic Ph.D. Research assistant, Institute of Agricultural Economics, Belgrade, Volgina Street no. 15, 11060 Belgrade, Serbia, E-mail: predrag_v@iep.bg.ac.rs, Phone: +381 11 69 72 858.
 - 4 Biljana Grujić M.Sc. Research assistant, Institute of Agricultural Economics, Belgrade, Volgina Street no. 15, 11060 Belgrade, Serbia, E-mail: biljana_g@iep.bg.ac.rs

Introduction

Further development of industrialized agriculture are increasingly be bringing into question for the reason that the global food chain and natural resources residues were burdens with persistent pesticides, nitrates, and all the worse organoleptic and nutritional properties of the thus obtained food. Therefore, in recent decades, it has been developed concepts of agricultural production which are based on natural balance of the system soil-plant-animal-man. Such forms of production falls and organic agriculture. Organic farming represents a comprehensive system of farm management and food production that protects environment, preserves biodiversity and natural resources. The sustainability of organic production is reflected in the rational use of natural resources, without exhausting, but rather through maintaining and increasing their diversity, leaving no negative impacts on the environment. This system is controlled and subject to inspection, which is why it has the trust of consumers in terms of quality and food safety (Roljević, 2014).

Researches around the world have shown that the production which is based on the principles of organic agriculture gives lower crop yields than conventional, but lower yields could be compensate with numerous benefits that organic farming bring. For agriculture these are: increased soil fertility, stable production and high quality food; for the environment are: reduced pollution and conservation of agro-ecosystems; for the economy: income security and strengthening local communities; and the promotion of public health is the starting point and ultimate goal of organic production.

Today, organic agriculture is practiced in 172 countries around the world, on around 40.3 million hectares (1% of global agricultural land), on which there are registered 1.8 million farms (FiBL-IFOAM, 2016).

For the EU, organic farming is practiced by 10.3 million ha, which represents 23.5% of global land area under organic production. The number of registered organic producers in 2014 at the EU amounted to 257,525, which is 2.4% compared to the total number of farms (Eurostat, 2016).

Compared to developed countries, organic agriculture in Serbia is of recent date, so the size of the soil area under this type of food production is not large. According to data from 2015 (Direction for National referent laboratories, 2015), there are 15.298 ha under organic production in Serbia, or 0.4% of total agricultural land, which indicates that the current scope of this practice is much smaller than the real potential.

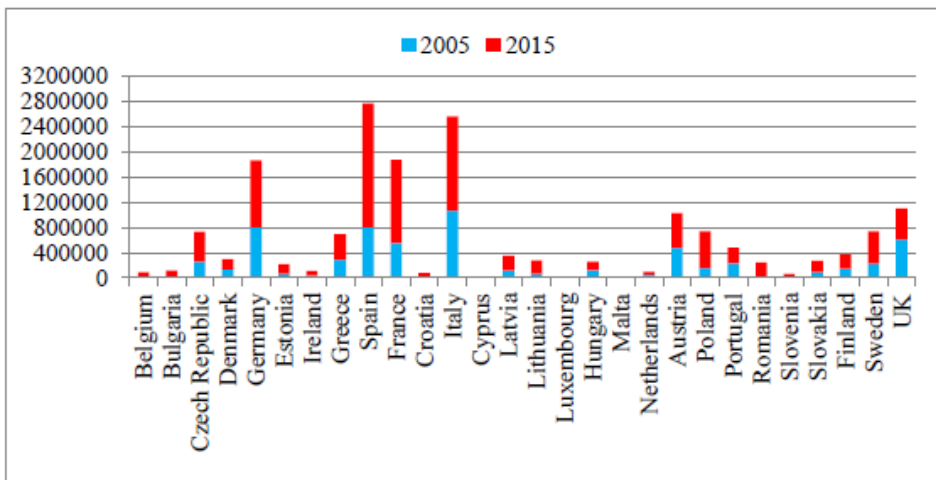
In the European Union has been developed support policy for organic agriculture on several levels as well as environmentally friendly production system during the last two decades. The first system of support measures to organic farming was established in Denmark in 1987, and this case were quickly followed by other countries. Today there are numerous of different measures that are financed from different sources, which are aimed at stimulating the expansion of organic farming in the EU.

Organic farming in the European Union

Organic agriculture in the world is evolving at a rapid pace in response to increasingly marked deterioration of health of the environment, the decreasing availability of natural resources and the deterioration of the quality of the food. Awareness about importance of organic agriculture is present especially in economically powerful countries where this type of food production and encourages and supported. At the level of the European Union in 2005 the area under organic production (certified land and land under conversion) accounted for 6.5 million ha, while in 2015 increased to 11 million hectares, which is 70% more compared to 2005 (Eurostat, 2017).

The largest growth in this period was in Bulgaria, where the area under organic production increased 25 times. A significant increase in the area under organic production in the reported period was recorded in Poland (3,6 times), Lithuania (3,3 times) and Belgium (3 times).

Graphic 1. Area under organic production in EU Member States



Source: Eurostat, 2017.

Areas under organic production differ significantly between Member States. Generally, the larger countries have more surface area under organic production.

According to *Eurostat* data most of the area is located in Spain (1,968,570 ha), Italy (1,492,579 ha), France (1,322,911 ha) and Germany (1,060,291 ha), which disposes of 50% of the total organic surface of the European Union (graph 1).

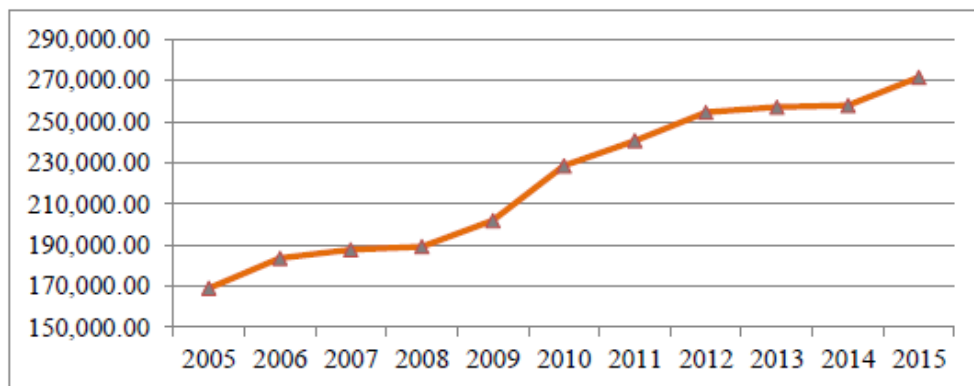
However, if we consider the share of organic area in total the usable agricultural area (UAA) gives a clearer picture of the importance of the organic sector in each of the member states and their ranking is quite different. According to data from *Eurostat* (date of access to data 14.02.2017) the share of organic area in total used agricultural area is the largest in Austria (20.3%), followed by Sweden (17.1%) and Estonia (15.7%). The

share of organic area in the UAA over 10% is found in the Czech Republic (13.7%), Italy (11.8%) and Latvia (12.3%). On the other hand, a very small proportion of the organic UAA are found in Malta (0.3%), Romania (1.8%) and Hungary (2.4%). The share of organic area (certified land and land under conversion) in the usable agricultural area at the level of the EU is 5.9%.

As for the categories of used soil the largest share of the organic surfaces is held by perennial grasslands (46%), followed by arable land (43%), and the lowest share is held by areas under perennial crops (11%). A similar situation is also observed at the global level.

In order to obtain a clearer picture of interest in organic agriculture in some country, the growth dynamics of the area under organic production should be analyzed together with changes in the number of producers in this sector. Eurostat data (graph 2) show that the number of producers on the EU level in 2015 increased by 1.6 times compared to 2005. The number of producers of organic food in 2015 at the level of the EU amounted to 271,547, which is 2.5% of the total number of households (10.8 million).

Graphic 2. The number of organic producers in the EU during the period 2005-2015.



Source: Eurostat, accessed 13.02.2017.

Most registered organic producers are located in Italy (52,609), Spain (34,673), France (28,884) and Germany (25,078) and account for 52% of the total number of organic producers in the EU.

Increases in area under organic production have been accompanied by dynamic growth of an organic products market. The total value of the organic market in the European Union in 2005 was 11.1 billion euros, while in 2014 it doubled, and according to Willer et al. (2015) amounted to 24 billion euros. At the same time, the retail value of organic products in the EU is the second largest single market for organic products in the world, after the US (27.1 billion €).

The consumption of organic products per capita in the EU during the period 2005-2014 increased by 110%, or more precisely from €22.4 to €47.4. The consumption of organic food per capita in Europe in general, particularly at the global level, is considerably

lower (table 1). Sima and Gheorghhe (2015) suggest that it is precisely the change in consumer habits, determine the a transition to a green economy.

Table 1. Organic market and production trends in Europe by country group, 2014

Country group	Retail sales (billion EUR)	Per capita consumption (EUR)	Producers	Land area (million ha)	Total land share (%)
EU 28	24,0	47,4	257.525	10,3	5,7
Evropa	26,2	35,5	339.824	11,6	2,4
Global	62,6	8,3	2.260.361	43,7	1,0

Source. Willer et al., 2015

Dynamic growth is a result of continuous improvement and the introduction of innovations in the system of organic agriculture in order to respond to the high expectations and demands of consumers for quality food, support for the health of the environment, animal welfare and rural development. However, despite the rapid growth of the sector of organic farming, there still exists an imbalance between the volume of production and the growing demand for organic food.

The support policy for organic agriculture in the European Union

Sector of organic farming in European Union is regulated by the Council Regulation (EC) No 834/2007 defining the official EU aims, objectives and principles of organic farming and production. Council Regulation follow two Commission regulations, Commission Regulation (EC) No. 889/2008 with the detailed rules for production, labeling and control, including the first amendment to the rules on production of organic yeast and Commission Regulation (EC) No. 1235/2008 detailed rules regarding the import of organic products from third countries.

During the past two decades, policy support for organic agriculture in the European Union has been developed on several levels, but it was only through introduction of agri-environment programs and measures under framework of the Common Agricultural Policy (CAP) in 1992 created a unique base for supporting the expansion of organic farming in the EU (Lampkin et al., 1999, Padel et al., 2007). CAP is based on the concept of multifunctionality, and strives to meet the demands of consumers in terms of food availability, its price, quality and safety, then to protect the health of the environment and allow farmers to live from their activities.

The Concept of Common Agricultural Policy is based on two pillars:

I. Direct subsidies to farmers and support for the market of agricultural products include direct financial assistance to farmers in order to provide a stable income. To be eligible for subsidies, farmers must now respect the principle of cross-compliance, which is based on two sets of rules. The first relates to the regulations in the production concerning the protection of the environment, human health, plant and animal welfare,

while the second group relates to good agricultural practice with the aim of preserving the land in good condition.

II. *Rural development.* Rural development policy is implemented through three elements: (1) improving the competitiveness of the agriculture and forestry, (2) improving environmental protection and rural areas, and (3) improving life in rural areas and diversification of the rural economy. All rural development programs must include measures for the protection and improvement of natural resources and the environment in rural areas in which organic farming is fully fit.

The reform of the CAP for new strategic framework 2014-2020 is aimed at a more equitable distribution of budget funds between Member States, the most significant changes in the policy relating to the introduction of so-called (EC, 2013). “Green payments”, which will in the long term, make possible sustainable food production, sustainable management of natural resources in terms of climate change and balanced territorial development (Westhoek et al., 2014). In short, the agriculture of the European Union should achieve a higher level of safe and quality food, while preserving the natural resources on which it directly depends.

Agri-environmental programs of the CAP encourage and stimulate farmers to be more environmentally conscious, and use financial assistance to direct farmers to adapt their conventional agricultural practice to methods of sustainable use and management of natural resources, in particular through the reduction of the number and amount of synthetic agents that are used in the production process and reducing the number of animals per hectare of arable land. Since 2015, all EU Member States will have to focus 30% of the funds meant for direct payments to farmers on financing sustainable agricultural practices, and on making the Common Agricultural Policy “greener” (EC, 2013). *Greening* can be implemented through three basic measures:

1. Maintaining perennial grasslands;
2. Diversification of crops, where a farmer must cultivate at least two crops at a time when arable land on the holding exceeds 10 ha, and at least three crops when arable land exceeds 30 hectares;
3. Maintaining protected/focus areas at least 5% of arable land on farms larger than 15 hectares (excluding permanent grassland) – i.e. maintenance of fallows, preserving the characteristics of the landscape, buffer zones, forested areas, nitrogen fixing and intercrop (EC, 2013).

Besides, at least 30% of the budget European Agricultural Fund for Rural Development (EAFRD) should focus on support for environmental measures and measures to combat climate change, including organic agriculture.

Expected budget support to environmental protection and the fight against climate change in the context of the second axis is approximately 29.7 billion euros (Table 2), which is not only a contribution to the environment, but also helps the development of

organic agriculture sectors in which the EU has the potential to become a leader in the global market.

Table 2. Key EU budget allocations for transitioning towards environmental and climate friendly practices and organic farming under the CAP 2014–2020 (Indicative figures)

	Billio n Euro	% of total EAFRD	% of total EU budget for agriculture
Pillar 1 - Market related expenditure and direct payments	312.7		76
Total national ceilings for direct payments 2014 - 2020	297.6		72.3
<i>Greening component (maximum 30% of direct payments)</i>	89.3		21.7
Pillar 2 – Rural development	99		24
<i>Contribution to environment & climate issues - including organic farming (minimum 30% of EAFRD)</i>	29.7	30	7.2
Organic farming support (conversion and maintenance payments)			
– EAFRD organic farming support (Measure 11)	6.3	6.4	1.5
– Total public expenditure (EU and Member States) for organic farming support (Measure 11)	9.9		
<i>Total environmental and climate change spending for agriculture (Pillar 1 and Pillar 2)</i>	119		28.9
Total EU budget for agriculture (Pillar 1 + Pillar 2)	411.7		100

Source: Stolze et al., 2016

When it comes to organic farming, the majority of Member States apply the system of direct payments to cover additional costs and reduce losses resulting from implementation of a system of organic management. The support system is usually implemented within Axis 2 (improving environmental protection and rural areas), or under Article 68 of Regulation EC 73/2009 (Specific support to farmers). A large number of Member States and regions also apply support for organic agriculture in context of Axis 1 (improving competitiveness of the agricultural and forestry sector) and that in most cases no or only partially exist special provisions for organic agriculture (Sanders, 2013). In a small number of cases, organic agriculture has provided support under the RDP measures Axis 3 (improving life in rural areas and diversification of the rural economy). The total amount of resources devoted to organic agriculture from the European Fund for Development of Agriculture and Rural Development (EAFRD) for the period 2014-2020 amounts to 6.286 Billion Euros, or 6.4% of total EAFRD funds (€ 98,958) (IFOAM, 2016).

Organic agriculture in the Republic of Serbia

The Republic of Serbia has great, so far under-used, ecological, economic and social capacities for agricultural production. The natural characteristics of the soil, the availability of water resources, and climate provide broader framework for structuring of agriculture, that on such grounds, could be viable and sustainable. By activating these endogenous resources, it would increase competitiveness of agricultural production and

rural development, while giving a positive contribution to the overall socio-economic development of the country (Roljević et al., 2012).

Although organic farming in Serbia has started to be implemented since the beginning of the twentieth century, the development of this sector is very slow, and systematic collection and monitoring of data has started much later if we compared with other EU countries.

According to data FiBL/IFOAM area under organic production in Serbia in 2006 covered the area only 740 ha. Today it is under organic production 15,298 ha (certified and areas in conversion), accounting for 0.4% of agricultural land in Serbia (MAEP, 2015). Arable crops (55%), orchards and vineyards (19%) is dominated in the structure of crop production, while vegetable gardening practices only 1% of land in organic production system (Table 3).

Table 3. Areas under organic production in Serbia in 2015.

Category	In the period of conversion (ha)	Certified areas (ha)	Total (ha)
Cereals	2.069,05	2.182,89	4.251,94
Industrial plants	1.216,25	1.458,14	2.674,38
Vegetable	45,61	124,89	170,50
Fodder crops	397,58	104,81	1.440,39
Fruit	1.291,13	1.603,98	2.895,10
Medicinal and Aromatic Plants	2,67	68,27	70,94
Rest	1.844,55	50,39	1.894,93
Total arable land	6.866,84	6.531,36	13.398,19
Meadows and pastures	802,63	1.097,19	1.899,83
Total	7.669,47	7.628,55	15.298,02

Source: Direction for National referent laboratories, MAEP, 2015

In Serbia exist about 2,000 individual producers (certificate holders) and 334 included cooperants (Simić, 2016). Individual producers have their own certificate and directly can make contract with one of the control organization for their production. On the other hand, production of subcontractors is subject of group certification, and producers make contracts with some of the companies, which is actually certificate holder, and who buys the whole production.

The biggest challenges of organic producers in Serbia are irregular and incomplete market supply with seed and planting material, especially in the required quantities; insufficient amounts of biological plant for protection products, organic fertilizers and compost. Market research has shown that in Serbia only consumes 2,500 – 3,000 t of organic fertilizer per annum (not including farm manure), but the needs are much bigger. These are primarily fertilizers that are imported from abroad, while the production of organic fertilizers, animal and / or plant origin deals only a handful of domestic manufacturers. As regards the scope and value of the organic market in Serbia, according to MAEP (2014) in 2013, the total quantity of exports amounted to 7,101 tons, which is 4.5 times

more than in 2012 (1,562 tons), while the total value of exports in 2013 (101 million euros) was higher by 27 times compared to 2012 (3.74 million).

The policy of support for organic agriculture in Serbia

Legislation is the basis for sustainable development of organic production while providing effective functioning within the market. Application of standards in organic production guarantee fair competition and aims to protect the interests of consumers. The sector of organic agriculture in the Republic of Serbia is regulated by the Law on Organic Production (“Official Gazette of RS”, No. 30/10 of 07th May 2010), which entered into force on 01 January 2011. This law and the accompanying regulations (Rulebook on control and certification in organic production and organic production methods and the ordinance on amending the rules on control and certification in organic production and organic production methods) regulate all matters relating to organic production methods, inspection and certification, processing, storage, transport, marketing and labeling of organic products. The control system for organic products in Serbia was established on the model of a control system that is prescribed EU regulations (Council Regulation (EC) No. 834/2007 and Commission Regulation (EZ) No. 889/2008). What is missing is a rulebook that would simplify lengthy and expensive procedures for the import of organic fertilizer, biological plant protection, sowing and planting material whose use is permitted in organic farming in the EU, and this makes it more difficult access to raw materials in organic production.

Agrarian policy in Serbia is under the Ministry of Agriculture and Environmental Protection and the Law on Agriculture and Rural Development (“Off. Gazette of RS”, no. 41/2009 and 10/2013, Article 3) implementation of the policy is carried out through implementation of the Strategy for agriculture and rural development in the Republic of Serbia, the National Programme for agriculture, and the National Programme for Rural development. The implementation of agricultural policy is carried out through direct, market and structural incentives. Structural incentives include the rural development measures which relate to:

(1) *Improving the competitiveness of agriculture and forestry.* These incentives are implemented through investments in agricultural production and investment in agricultural product processing and marketing, regress of insurance premiums for crops, fruit perennial plantations, nursery and animals.

(2) The improvement of environmental programs, biodiversity conservation and diversification of the rural economy is realized through incentives for caring agro-ecologic measures, organic production, protection of plant and animal generic measures, compensation for missed income as a result of the implementation of good agricultural practices, animal welfare and other policies to protect and preserve the environment.

(3) *Improving the quality of life in rural areas* is being implemented through incentives for economic activity in terms of adding value to agricultural products, as well as the introduction and certification of food safety and quality, organic products and products

with geographical indications, improving training in the field of rural development and investments for the improvement and development of rural infrastructure.

A total of 262 million euros is intended for the realization of the policy of incentives in agriculture and rural development in 2013 by Regulation (Sl. Gl. RS “, no. 20/13), whereby according to the Ministry of Agriculture and Environment, 234.8 million euro has been realized (MAEP, 2014, book 1). The most common form of subsidies are direct payments, to which 92% of total assets are devoted. The second most common form of incentives is support for rural development, for which about 10.5 million euros have been allocated in 2013, i.e. 4% of total intended funds. As part of the funds intended for incentives for rural development, 1.7 million, or 16.6% is defined for the development of organic agriculture (Table 4).

On the other hand, the policy of implementing incentives in agriculture and rural development in 2016 has received 159 million euros in accordance with the Regulation (Sl. Gl. RS “, no. 8/16), which is 40% less compared to 2013. Direct payments are still the most common, with a share of 86%, but the share of rural development support increased to 9% in the total amount of funds. What is worrying is the fact that the funds intended for stimulating organic agriculture drastically reduced and in 2016, and amounted to only 747,000 euros, which is 5% of the funds intended for incentives for rural development.

Table 4. The amount of subsidies in agriculture and rural development in 2013 and 2016, converted into EUR

	2013*	2016**	Index 2016/2013
Direct payments	242,305,846.40	137,844,597.90	-43.11
Rural development	10,494,954.45	14,941,510.97	42.37
Organic farming	1,745,200.70	747,359.87	-57.18
Credit support	4,363,001.75	4,874,086.11	11.71
Special support	4,851,657.94	1,889,926.89	-61.05
Total	262,015,460.60	159,550,121.90	-39.11

Source: Regulation on the allocation of subsidies to agriculture and rural development in 2013. and 2016.

* Average exchange rate of the euro as of 31.12.2013 amounted to 114.6421 RSD

** Average exchange rate of the euro on the day of 31.05.2016 amounted to 123.1015 RSD

Incentives for organic farming introduced in 2004, provided that the types of support over the years has been changed as it has been changed amounts of incentives (Table no. 5). The adoption of the Rules on the use of incentives for organic production (“Official gazette RS”, No. 52/14) defines the types of incentives for organic production conditions, methods and forms required for entitlement to these incentives and the maximum amount of incentives per user and per type of individual measures.

Incentives can be achieved at a premium for milk produced with organic production method, then in organic crop production, followed by the recovery of plant nutrition products are allowed for use in organic crop production, as well as in organic livestock production.

Table 5. Measures to support development of organic farming over the years

Type of support	2004-2005	2006	2007-2008	2009	2010-2011	2012	2013-2016
Covering the costs of control and certification	■	■					■
Payments per hectare (ha)		■	■	■	■		■
Payments per head of cattle / beehive		■	■	■	■		■
Payments for the production of reproductive material				■			
Promotion, establishing demonstration farms, education		■					

Source: Simić, 2015

By starting the negotiation process for accession to the EU in the field of agriculture and rural development, there appears an imperative need to harmonize national policies for agriculture and rural development with the rules and principles of the Common Agricultural Policy. In order to help candidate countries to adapt the agricultural sector and rural areas to the premises of the Common Agricultural Policy, the EU provides support in the form of IPARD funds (Instrument for Pre-Accession Assistance in Rural Development).

Out of the total budget of IPARD II for the period of 2014-2020, intended for Serbia (EU contribution amounts 175.000.000 euro, and national contribution 54.970.588 evra)⁵, around 44% was planned for the measure “Investment in physical property of agricultural households” and around 35% for the measure “Investment in physical property concerning processing and marketing agricultural products and fishery products”. The measure “Diversification of agricultural households and business development” are planned to receive 10% of the total budget with the goal of stabilising income in rural areas. The planned investments for improving agri-eco-climate measures are 5% of the total budget. The agri-ecological measure most often given support to given support to is organic agriculture, both due to the overall gain it has for the environment and biodiversity protection, and for the increasing economic potentials of organic food.

⁵ Source: Ministry of Agriculture and Environment of the Republic of Serbia, Republic of Serbia IPARD program for the 2014-2020 Str 96, Belgrade, 2014

IPARD measures will only support organic farmers involved in crop production (cultivation of cereals, oilseeds, vegetables, fruit or grapes and aromatic / medicinal plants), while the organic animal production and animal and plant genetic resources will be subject of support of the National Programme for Rural development. However, the impact of the current economic situation could reduce access to funds (Zefinescu et al., 2015).

IPARD funds will be available after the establishing of the institutional framework necessary for the implementation of IPARD. The preconditions that must be met for the aim accession IPARD funds are:

- it is essential to the formation of the governing body that will write the program, define measures that will implement and monitor the execution of the program, as well as
- establishment of IPARD Agency, which will be the intermediary between the accounts of EU funds and national accounts and transfer to the IPARD agency.

In 2016, by the Regulation on the allocation of subsidies to agriculture and rural development (Article 8) were the first time planned assets for participation in IPARD fund in the amount of 100 million dinars, and make 5.43% of the assets which are dedicated for rural development.

Conclusion

The sector of organic agriculture is growing rapidly, but it still only represents a small part of the global agriculture. The European Union is one of the world leaders in the sector of organic agriculture, both in the aspect of areas under organic production, scope of production and the market for organic products, as well as the aspect of developing systems of institutional support for this sector. The support for the development of organic agriculture in the EU is the Common Agricultural Policy, i.e. its second pillar. The assets meant for organic agriculture, from the European Agricultural Fund for Rural Development (EAFRD) for the period of 2014-2020 are 6.4% of the total EAFRD fund. The development of organic agriculture in the Republic of Serbia has until recently been quite slow, but it certainly possesses great natural potential for increase with adequate support and incentives.

Therefore, it is necessary greater consistency of relevant institutions in creating incentives and continuous payments. Beside that, it is alarming the fact that only in the last three years, assets allocated for organic production decreased a twice. On the other hand, if we take in mind the growth of demand for organic food and current market growth at the global level, primarily the European Union market, the organic sector in Serbia could be one of the factors of economic development of country.

Literature

1. Direction for National referent laboratories, MAEP, 2015, http://www.dnrl.minpolj.gov.rs/o_nama/organska.html
2. EUROSTAT http://ec.europa.eu/eurostat/statistics-explained/index.php/Organic_farming_statistics
3. European Commission (2013): *Overview of CAP Reform 2014-2020*, DG Agriculture and Rural Development, Unit for Agricultural Policy Analysis and Perspectives
4. Lampkin N., Foster C., Padel S. (1999): *The Policy and Regulatory Environment for Organic Farming in Europe: Country Reports*, Organic Farming in Europe: Economics and Policy, no. Vol. 2. Universität Hohenheim, Stuttgart
5. Ministry of Agriculture and Environmental Protection (2014): *Report on the state of agriculture in the Republic of Serbia in 2014*, Book 1 and Book 2, <http://www.mpzss.gov.rs/korisna-dokumenta-i-linkovi/>
6. Ministry of Agriculture and Environmental Protection (2014): *Republika Srbija IPARD program for 2014-2020* <http://ipard.co.rs/doc/srbija-ipard-2-program.pdf>
7. Padel S., Lampkin N., Lockeretz, W. (2007): *The development of governmental support for organic farming in Europe*, Organic farming: An international history, 93-122.
8. Research Institute of Organic Agriculture (FiBL) and IFOAM - Organics International (2016): *The World of Organic Agriculture, Statistics and Emerging Trends 2016*, <https://shop.fibl.org/fileadmin/documents/shop/1698-organic-world-2016.pdf>
9. Roljević S. (2014): *Productivity of alternative small grains in the organic farming system*, doctoral dissertation Faculty of Agriculture, University of Belgrade, UDC 631.147:633.11(043.3)
10. Roljević S., Grujić B., Sarić R. (2012): *Organic agriculture in terms of sustainable development and rural areas' development*, Rural development policies from the EU enlargement perspective, European rural development network, Institute of agriculture and food economics – NRI, Institute of agricultural economics belgrade, Published by the Institute of Agricultural and Food Economics - National Research Institute, Rural areas and development – vol. 9, Editors: Drago Cvijanović, Zbigniew Floriańczyk, ISBN: 978-83-7658-275-7, pp. 155-172
11. Sanders, J. (ed.) 2013: *Evaluation of the EU legislation on organic farming*, Braunschweig: Thünen Institute of Farm Economics
12. Sima, V., Gheorghe, I. G. (2015): *Changing Consumption Patterns in Green Economy*, Agricultural Management Strategies in a Changing Economy, 186. In Andrei J.V.(2016), Food Science, Production, and Engineering in Contemporary Economies, IGI Global USA
13. Simić I. (2015): *Organska proizvodnja - neiskorišćen potencijal Republike* EP 2017 (64) 1 (323-337)

- Srbije*, Strengthening of Civil Society, Norwegian Embassy http://eukonvent.org/wp-content/uploads/2015/03/Neiskorisцени-potencijali-organske-proizvodnje_Nakon-sednice_FIN.pdf
14. Simić I. (2016): *Organic Agriculture in Serbia At a Glance 2017*, National Association Serbia Organica, <http://www.serbiaorganica.info/wp-content/uploads/2012/07/Organic-Agriculture-in-Serbia-At-a-glance-2017.pdf>
 15. Stolze, M., Sanders, J., Kasperczyk, N., Madsen G., (2016): *CAP 2014-2020: Organic farming and the prospects for stimulating public goods*. IFOAM EU, Brussels
 16. Regulation on the allocation of subsidies to agriculture and rural development in 2013, „Official Gazette RS”, No. 20/13
 17. Regulation on the allocation of subsidies to agriculture and rural development in 2016, „Official Gazette RS”, No. 8/16
 18. Westhoek, H., Van Zeijts, H., Witmer, M., Van den Berg, M., Overmars, K., Van der Esch, S., Van der Bilt, W. (2014): *Greening the CAP. An analysis of the effects of the European Commission’s proposals for the Common Agricultural Policy 2014-2020*, Netherlands Environmental Assessment Agency
 19. Willer Helga, Schaack Diana, Lernoud Julia, Meredith Stephen (2015): *Growth trends in European organic food and farming*, pp. 20-58, in publication: Stephen Meredith and Helga Willer eds (2015): *Organic in Europe prospects and developments 2016*, IFOAM EU Group, FiBL
 20. Law on Agriculture and Rural Development „Official Gazette RS”, No. 41/2009 and 10/2013
 21. Zefinescu, C., Ibrahim, M. A., Popovic, V., Mieila, M. (2015): *Measuring the economic performance in decision making process in the contemporary economies*. *Procedia Economics and Finance*, vol. 22, pp. 380-38

MERE PODRŠKE RAZVOJU ORGANSKE POLJOPRIVREDE U EU I SRBIJI⁶

Svetlana Roljević Nikolić⁷, Predrag Vuković⁸, Biljana Grujić⁹

Apstrakt

Cilj rada je analiza stanja sektora organske poljoprivrede, kao i sistema podrške koji se ovoj ekološkoj proizvodnji pruža u Evropskoj uniji i Srbiji. Organska poljoprivreda pokazuje dinamičan proces rasta i razvoja, naročito u ekonomski razvijenim državama. U proteklih deset godina površine pod organskom proizvodnjom u EU uvećane su za 70%, broj sertifikovanih proizvođača veći je za 60%, dok je ukupna vrednost tržišta udvostručena. Sa druge strane, rast i razvoj organske poljoprivrede u Srbiji je veoma spor. Trenutno, površine pod organskom proizvodnjom čine svega 0,4% ukupno korišćenog poljoprivrednog zemljišta, dok je za ovaj način proizvodnje hrane sertifikovano 0,3% od ukupnog broja poljoprivrednih gazdinstava.

Intezivan rast organske poljoprivrede u EU omogućen je stabilnom podrškom kako u pogledu mera, tako i finansijskih sredstava, dok se u Srbiji iz godine u godinu menjaju ne samo iznosi samih podsticaja, već i tipovi podrške. Na osnovu toga, može se zaključiti da je stabilna podrška države ključna za podsticanje rasta i unapređenje sektora organske poljoprivredne proizvodnje.

Ključne reči: *organska poljoprivreda, poljoprivredna politika, mere podrške.*

6 Rad predstavlja deo istraživanja na projektu 46006: "Održiva poljoprivreda i ruralni razvoj u funkciji ostvarivanja strateških ciljeva Republike Srbije u okviru dunavskog regiona", kao i projekta 179028: „Ruralno tržište rada i ruralna ekonomija Srbije - diverzifikacija dohotka i smanjenje ruralnog siromaštva“ finansiranih od strane Ministarstva prosvete, nauke i tehnološkog razvoja Republike Srbije

7 Dr Svetlana Roljević Nikolić, naučni saradnik, Institut za ekonomiku poljoprivrede, Beograd, Volgina Ulica br. 15, 11060 Beograd, Srbija, E-mail: svetlana_r@iep.bg.ac.rs, Telefon: +381 11 69 72 858;

8 Dr Predrag Vuković, istraživač saradnik, Institut za ekonomiku poljoprivrede, Beograd, Volgina Ulica br. 15, 11060 Beograd, Srbija, E-mail: predrag_v@iep.bg.ac.rs, Telefon: +381 11 69 72 858

9 MA Biljana Grujić, istraživač saradnik, Institut za ekonomiku poljoprivrede, Beograd, Volgina 15, 11060 Beograd, Srbija, email: biljana_g@iep.bg.ac.rs

PROGRAM OF STATE SUPPORT TO AGRICULTURAL CREDITING*Željko Vojinović¹, Vera Zelenović², Drago Cvijanović³***Abstract**

One of the most important industries in Serbia are agriculture, the potential for the State, which is on its way to become a member of the European Union, represents the backbone of economic growth and development. Integrating with the EU represents a task to establish such a model and framework of relations of the State towards agriculture in order to easier harmonization of national policies with the policy of the EU. In this day and age when growing awareness about the importance of nutrition and the importance of the arable land, it is necessary to devote special attention to the problem of the lack of funds in the framework of agricultural production. A solution to the problem of technical and technological processes in the manufacture of food products, especially healthy food, you can browse in the measures of improving and increasing production through different approaches to stimulate and subsidizing of agricultural producers. It is certainly in the interest of the State, so it is for that reason necessary to devote special attention to budget and how financing and other measures in the direction of the stimulus of all participants in the market who participate in agricultural production.

Key words: *agricultural production, a policy of financing, crediting, development, harmonisation.*

JEL: *Q18, Q28, Q48*

Introduction

Approaching to EU means also the adjustment to legal, organisational, systematic and other norms within agriculture. All these changes in the Republic of Serbia occur for many years back in terms of an owner change, privatisation and sale of land, increasing demand, which

-
- 1 Željko Vojinović Ph.D., Assistant Professor, University Novi Sad, Economic faculty Subotica, Segedinski put no. 9-11, Subotica, Serbia, Phone +381 24 628 030, E-mail: zeljko.vojinovic@ef.uns.ac.rs,
 - 2 Vera Zelenović Ph.D., Professor, University Novi Sad, Economic faculty Subotica, Segedinski put no. 9-11, Subotica, Serbia, Phone +381 24 628 164, E-mail: vera.zelenovic@ef.uns.ac.rs.
 - 3 Drago Cvijanović, Ph.D., Full Professor University in Kragujevac, Faculty of Hotel Management and Tourism, Vrnjačka Banja, Republic of Serbia, Vojvodjanska street no 5A, 36210 Vrnjačka Banja, Serbia, Phone +381 63 295 111, E – mail: dvcmmv@gmail.com

has as a result the increase in prices of arable land, enlargement of agricultural holdings related to purchasing larger areas of land by a small number of buyers, etc. These processes and changes are still ongoing and doing business of farmers is increasingly based on the market principles.

The state can realise a set of objectives of the agrarian policy by different instruments. The instruments of economic, technical and legal character are primarily available. If it is about the economic instruments, first of all, these are taxes and other budgetary financing, investments in agriculture, the price policy, where surely can be mentioned the protection of domestic manufacturers in regard to foreign competition. The protection of crops and fruits against the different risks of destruction, through stimulating the insurance companies in direction of taking the risk, is an important economic instrument. Technical nature instruments, such as the introduction of new and modern machinery, recent technological solutions of chemical processes, consolidation of holding, reallocation of holding and others, are correlated to the previously mentioned instruments of economic character, while their implementation is easier if implement jointly. Legal instruments help regarding easier organization and doing business to farmers, in turnover of property and land, realisation of their creditors' rights, etc. Legal aspect has its special severeness in the sector of agro-food production. Increasing attention which pays to food safety issues imposes more harsh business conditions for food manufacturers and tradesmen. It results by an increasing number of legal decisions in force, as well as their constant modifications. Hence a large number of legal decisions of the EU, which refer to the field of agriculture and food safety – over 40% of total number of legal decisions within the EU, are in force (Bogdanov, 2007).

All mentioned instruments, if apply jointly and synchronized, provide a far greater effect than individual and partly renamed policies. The goal of this manuscript is to perceive the significance and thereby also the potential of agricultural production in the state, but those goals are very hard to achieve without an adequate state agrarian policy. Analysing different experiences of developed and successful countries in the field of agriculture, there can conclude that there is no successful agriculture without the state intervention in this sector. However, the state influence has completely different forms in some countries. For example, the Netherlands, one of the leading world exporters (second-ranked country in the world by the value of agricultural export, of 72 milliard euro in the year 2011) bases its agriculture motivation on the EU Common Agricultural Policy, with a generous budget meant for subsidizing agriculture. On the other hand, Brazil is at the top of the world agricultural exporters, and most of its agrarian budget Brazil directs to research and development in the field of agriculture, and not the subsidies of production. These examples clearly point out to inability of agro-food sector development without the state support, whatever the concept of liberal economy would be fruitful (Bogdanov, 2007).

Methodology

The subject of this manuscript is exactly to review the situation in agricultural production, possibilities and capacities of a branch, and first of all, the state impact to a financial sector in terms of crediting, as well as the policy of farmers stimulations by the state.

Serbian agriculture could face very difficult challenges on its way to the European integrations, but this sector will have, at the same time, also many benefits from the European Union membership; if Serbia is a member of the European Union, it would get around 1.6 milliards euros per year from the agricultural and rural developmental funds, which amounted 55 milliard euros in 2010. Serbia, on its way to the EU membership will have to adjust to regulations and standards of EU, which will significantly change the situation in Serbian agriculture. Economic goals, targeted by the Copenhagen criteria (which define conditions for accession of any country to the European Union) imply making and functioning of market economy which would be capable to integrate in the market economies of other member-states, capability to withstand competition, in a way that the state economy withstands the entry onto the unitary EU market and the adjustment of an entire set of the European Union rules and practice by which it works, known as *acquiscommunautaire* (http://euinfo.rs/files/Publikacije-srp/31_Poljopriceda_i_EU.pdf).

The state of agricultural production in Serbia and the current support of EU

According to Stanković (2012), the agrarian policy in its broader sense, can be defined as a program of directing agricultural development within already chosen model of development as a whole. The subject of the agrarian policy is the entire vertical of agro-industrial production, which comprises:

- Production of agrarian inputs,
- Production of the primary agricultural products,
- Production of agro-food products,
- Including turnover,
- Final consumption and the policy of population nutrition.

The Republic of Serbia is located on area of totally 8,840,000 ha. Agricultural area covers 5,346,597 ha, or 60%, of which utilised agricultural area is 3,437,423 ha, and arable land is 2,513,154 ha. Difference between the utilised and arable land is mostly meadows and pastures (Birovljev, Vojinović, Balaban, 2015). It is important to point out to a size of plots and a number of holdings, from the aspect of agricultural production and economic business indicators. Dissection of agricultural land implies the fragmented production with increased transport costs. There are 631,122 registered agricultural holdings in Serbia, of which 628,555 family holdings and 2,567 legal entities. It is considered to be around 450,000 registered holdings.

Recognizing the socio-economic structure of holdings, according to their members' income sources, point out to a fact that 326,015 family holdings in Serbia (52% of a total number) don't have other incomes except agriculture. Besides, it provides livelihood income to persons employed in the production-sale processes, which don't occur exclusively in the field of agriculture, but in the purpose of its support (production of artificial fertilizers, agricultural machinery, packaging and transport equipment for agricultural products). It is expected of

agriculture to be a driving engine of rural areas development and thereby affects the decrease of growing regional disparities (Bogdanov, Babović, 2014).

According to Birovljev and associates (2015), the most of arable land is in Vojvodina 1,589,065 ha, of which in South Banat 315,247 ha. It amounts 5.3 ha per holding, while the Czech Republic has an average size of holding 152.4 ha, and Malta only 0.9 ha. The average in Serbia per capita is 0.5 ha, in Banat 1.23 ha.

According to the same authors, the value of total production is 3.3 milliard euros, which is far away from the potential production. From an insurance underwriter's point of view, a premium that can be realised in arable land could increase up to 10 times from the current value.

Agriculture plays an important role in economic and social life of Serbia. According to data of the Ministry of Agriculture, more than two million people or 700,000 families are engaged in this activity. One European Commission's report stated that around 55% of population in Serbia lived in rural areas, while one third of active Serbian population depended completely or partly on the agricultural production as a food source (http://euinfo.rs/files/Publikacije-srp/31_Poljopriceda_i_EU.pdf).

It is almost impossible to state everything that affects production, but we will try to mention some of more important factors (Brkanić,1996): lack or excess moisture in soil and air (drought or excessive rain), too low or too high temperature of soil and air (frost or heat stroke), lack or excess of plant nutrients, hail, storm wind, flood, fire, plant diseases (fungi, bacteria, viruses), pests (insects, rodents), weeds (Maliva, Missimer, 2012).

The state has introduced incentives to these indicators of agricultural production in terms of subsidizing the insurance premiums, but only for legal entities and registered holdings, which have been engaged in this activity. Since the year 2007, there has been introduced the subsidy of 30% of premium, while in 2009 this percentage was increased to 40%. Approximately the same amounts of subsidies can be found in other European countries to which we compared, while in half of these countries this form of state support hasn't even been introduced (Tsakiris, Vangelis, 2005).

Additional abilities of subsidizing were left to policies, implemented by the local authorities. Significance of agricultural production, especially for Serbia, in this manuscript we state primarily for the following reasons:

- ✓ Strategic economic branch of the state,
- ✓ Substantially dependable on natural conditions,
- ✓ Great but unused potential,
- ✓ Significant market participant,
- ✓ Great impact on human health and environment.

The necessity of state intervention in agriculture results from this production peculiarity, i.e. slow capital turnover, which was invested in agricultural production, due to a seasonal character of this production. Climate factor in agricultural production plays an increasing role, because it is about the organic production which realise in open air (Birovljev, Glamočanin, 2011).

The necessity of interventions in the sector of agriculture starts from a fact that the agrarian sector has been constituted by a large number of small family firms, as very important in the developmental system functioning of each country. Agrarian interventionism is an issue around which have always led a controversial debate. Lately are present the price policy and the support to farmers income. During the second half of XX Century, the agrarian policy has continuously pushed the agrarian sector of developed countries in overproduction, causing the decrease in prices of basic agricultural products on the world market. Such policy has led to disturbance of balance between two organisation models of agro-sector, agro-business and family agriculture, by accelerating the structural reforms (Birovljev, Tomić, 1996).

Observing the treatment of agrarian interventionism, we can conclude that a general consensus was reached on unreasonably high costs in managing the modern agrarian policy, as well as distorting effects produced on the world market of agricultural products by a model of state interventions in the agrarian sector. It doesn't mean simultaneously that agrarian economists will abandon the idea that the agrarian sector should be „protected“. Hence, the current debate regarding the agrarian interventionism is mainly oriented towards the identification of the legitimate right of the state to intervene and what is the cost of this intervention. In that sense, the basic reasons for the state intervention in the agrarian sector were identified in next strategic fields (Zakić, Stojanović, 2008):

- ✓ Increase of agricultural production efficiency,
- ✓ Protection of farmers' income,
- ✓ National food safety,
- ✓ External effects and public goods in agriculture.

When Serbia joins the European Union, agricultural areas in the European Union will increase for 5,097 million hectares, i.e. 3% of agricultural areas used in EU. Until Serbia joins the European Union, it has to adjust the subsidy policy to the European practice. Export of agricultural products increases from year to year and makes almost one fourth. Agriculture and rural development represent one of the most demanding sectors in the process of harmonization with the European Union standards. Regulations in the field of agriculture make almost one third of all EU regulations (http://euinfo.rs/files/Publikacijesrp/31_Poljopricreda_i_EU.pdf).

The European Union has also financed the purchase of laboratories and other equipment to monitor and combat rabies and classical swine fever (additional 3.5 million euros), as well as the technical support for repression of these two animal diseases (two million euros). This will help collecting data in the field, aiming to establish the rabies and classical swine

fever diagnosis. This project will help the improvement of population health and open up opportunities for expanding the Serbian market and food export into the European Union in future (http://euinfo.rs/files/Publikacije-srp/31_Poljopriceda_i_EU.pdf).

Agrarian policy of the European Union

Functioning of the European Union, i.e. its common policies, bases on the European Parliament, Council, European Commission, Court of Justice and Court of Auditors. These five institutions represent the national framework underlying the European Union, and by their interaction provide freely functioning of the European Union. Special attention in this complex system is paid to the creation and adoption of a budget. The initial budget creates by the Commission and sends to the Council for review. The Council rejects or adopts the suggested budget by the qualified majority and sends it to the Parliament (Bureau, Mahe, 2008).

The significance of the common agricultural policy and rural development grows from year to year. This growth increases together with the European Union enlargement. It is inevitable to mention that the common agrarian policy is the oldest and, until now, the most carefully reformed sector common policy and represents the most demanding segment of economic activities in the European Union.

The initial principles, that common agricultural policy is defined on, are as follows:

- Unique market,
- Union priority,
- Financial solidarity.

The unique market implies a free circulation within the European Union, without any customs duties, while it implies the unique tariff protection for products outside the European Union (http://euinfo.rs/files/Publikacije-srp/31_Poljopriceda_i_EU.pdf). The obligation of financing agriculture imposes to all EU members through financial solidarity.

In the history of the common agricultural policy of the European Union may differ the following periods (Mihailović, Cvijanović, Hamović, 2009):

1. Idea and formation of policy in the period from 1946 until the beginning of '60ies,
2. Application of strong financial support to agriculture from '60ies to the end of '80ies,
3. The beginning of '90ies and so called MacSherry reform in 1992, with turning point in decreasing the budget support,
4. Period after the year 2000 and strengthening of rural development followed by the programs for environmental protection.

According to Bureau and Mahe (2008), the common agricultural policy is the most expensive policy from the aspect of the European Union central budget. For many years, its share in the total, central budget was amounted more than half of totally available assets. This fact,

which puts agriculture at the top of the European priority list, is often wrongly interpreted in domestic public. Countless times before was heard requirements for increasing the budget financing meant for the Serbian agriculture. As a base for increasing often uses looking up to the European Union, but an avoidable comment is that EU allocate a half of its budgetary funds for agriculture, while the Republic of Serbia allocate much less funds, surely, in a relative sense. For example, the agrarian budget of the Republic of Serbia in 2014 was about 4.1% of the national budget. In this ignores the fact that these two ciphers cannot be compared. There are numerous reasons for that.

The common agricultural policy is financed from the central EU budget, which forms from the following sources (Bureau and Mahe, 2008):

1. Agricultural duties, which make around 3% of total EU budget,
2. Fixed share of GDP of EU member countries is the main source of financing and makes 45% of total budget,
3. Customs duties participate with 15% in creating the budget,
4. Value added tax makes 37% of the budget.

The common agrarian policy of the European Union is grouped in two columns, i.e. in Column I and Column II. This way of expressing the budget expenditures has become popular after the reforms in 2000. When the agrarian budget expenditures express in this way, the column I represents expenditures meant for the market support (Analysis of the 2003 CAP reform, OECD 2004):

- ✓ Support measures to some products by intervention buying or subsidies for private storage,
- ✓ Models of support by purchasing for emergencies and the support to manufacturer groups,
- ✓ Direct payments, often through the production quota system or reference yields or areas due to the budget expenditure restrictions,
- ✓ Measures for the regulation of production by production quotas, maximum storage and obligatorily leaving the specific land uncultivated,
- ✓ Other measures related to environmental issues and conditions for keeping animals.

If it is about the column II, the measures are regulated by the regulations for rural development and comprise (Rikalović and Jovanović-Gavrilović, 2008):

- ✓ Compensation for cultivating less favourable areas and areas endangered by natural disasters,
- ✓ Agro-protective measures,
- ✓ Support to forestry,
- ✓ Subsidies for investments on farms, modernization and diversification,
- ✓ Subsidies for marketing and processing of agricultural products,

- ✓ Support for early retirement, as well as the support for young farmers,
- ✓ Training programs,
- ✓ Programs to improve water management, land planning and improvement,
- ✓ Support to rural tourism development and activities from the handicrafts category,
- ✓ Other measures of support to rural development in accordance to the clause 33.

Table 1. Distribution of direct payments from the European Union and the national budgets of the EU new members (in %)

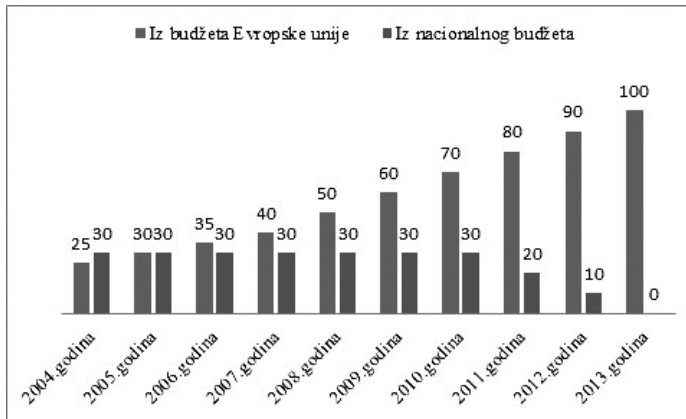
Year	From the European Union budget	From the national budget	Total
2004	25	30	55
2005	30	30	60
2006	35	30	65
2007	40	30	70
2008	50	30	80
2009	60	30	90
2010	70	30	100
2011	80	20	100
2012	90	10	100
2013	100	0	100

Source: *Analysins of the 2003 CAP reform, OECD 2004.*

According to the same source (Rikalović and Jovanović-Gavrilović, 2008), the traditional approach to common policy of agriculture funding in modern life conditions, when more attention pays to the protection of human health and environment, suffers the same critics and by this experiences some changes. The goals of future EU agrarian policy are directed to:

- ✓ Improvement of competitiveness – transfer of knowledge, innovation, risk management, cooperation in production chain, processing and sale of food,
- ✓ Improvement of sustainability –green payments, cross-compliance, resource efficiency, research,
- ✓ Higher efficiency – redistribution of funds, more precise placement of funds, simplification of procedures.

As for other policies within the European Union, in the same way the common agricultural policy is anticipated the maximum budget within 7-year-lasting cycle (2014-2020). New Multiannual EU financial framework for the period 2014-2020 anticipates the total budget for the realisation of common agrarian policy in amount of 408.3 milliard euros, or 38% of the total EU budget, which points out to significant decrease of share in the total EU budget in past 30 years, when the share for common agricultural policy was amounted up to 75% of the total budget (Rikalović and Jovanović-Gavrilović, 2008).

Chart 1. Distribution of direct payments from the European Union and the national budgets of the European Union new members (in %)

Source: Authors

Policy of financing the agrarian production in Serbia

Agricultural production in Serbia, as an important economic branch and with unused potential, should be a significant moment of political and economic recognition, aiming to solve problems which follow the production. Insufficiently used capacities are the consequence of poor engagement of farmers, insufficient care and support for their position in economic processes. Technologically and technically poorly equipped are not capable to intensify their results in quantitative sense, as well as to manufacture larger amounts of healthy food without problem to sell these products. All of these point out to lack of financial resources, as well as a better regulatory framework of agricultural production.

Inadequate agricultural policy results in disintegration of rural population in small and big, on manufacturers who are engaged in the specific branches of agricultural production, enhancing migrations in rural-urban relation, on negative trends in foreign trade exchange of agro-food products etc. (Popović, Simonović, Živković, 2004).

On the way of redefining policy are restrictions which agriculture/state/policy meets, personified in insufficient financial resources for the support to agriculture and rural development, inadequate analytical framework for creating the efficient policy, absence of specialised institutions/state authorities for providing support to agriculture, in heritage of the previous socio-political arrangement, inertness of participants. However, the main activities of the state are well-known and can be classified in three basic: legislative, financial and institutional (Popović, Simonović, Živković, 2004).

From the economic point of view, the agricultural production should get the legislative and institutional framework, financial support regardless to which direction the state will take in future. Approaching to EU is surely set as a goal, as well as a task of all relations harmonization, and this should be done, without doubt, as soon as possible and in the painless way. Many of the advantages from setting up the EU regulatory framework should be used

regardless to the state foreign-policy priorities.

Stable policy in the field of agriculture implies the application of the same (or about the same) set of selected measures of agrarian-rural policy in a multi-year period. This set has to be personified in certain kind of a strategic document and verified in the Republic of Serbia National Assembly, as a legislative body. This verification provides an immutability seal, since every eventual change will require a parliamentary debate. In practice, this means proficiency in defined and adopted rules of the game, in mid-term period, by all participants in agro-business, but also the potential new participants. It is especially significant for building a stable and stimulating environment for business of the local entities of agribusiness, but also attracting foreign investors for this sector (Popović, Simonović, Živković, 2004).

Financial support to agriculture

Financial support to farmers can go in several directions. Surely more favourable credits would be one of the forms for finding more favourable financial resources, which can be very important in satisfying farmers' needs, by their sources of financing. The second, very important segment is tax policy for farmers and their products, pursued by the government. We have already mentioned subsidies on insurance premiums, which can help and provide stimulus for agricultural production. Accordingly, the basic modalities for finding financial resources for the development of agricultural production are:

- Favourable credits (lower interest rates, easier approval of credits and the adequacy of a size and purpose of funds),
- Tax system (real rates and base, as well as the introduction of incentives),
- Subsidies (prices of products, insurance premiums and others).

Taking into consideration the great significance of agricultural production in Serbia, banks offer credits meant for farmers, working capital and the purchase of fixed assets. There are also credits for the registration of agricultural holdings for which the state subsidizes an interest, and are meant for the purchase of raw materials and other working assets. The credits are short-term with a maturity of 3-12 months. An interest rate related to these types of credits is significantly lower than the one related to other credits. Long-term subsidized credits, in cooperation with the Ministry of Agriculture, Forestry and Water Management, are meant for investing in fixed capital in agriculture – purchase of agricultural machinery and equipment, purchasing a foundation stock, investing in facilities in agriculture, the irrigation system and other fixed assets. Repayment of these credits is planned in quarterly, semi-annual and annual annuities, with the period of the beginning from 12 to 36 months, depending on the credit purpose (http://www.tvojnovac.nbs.rs/edukacija/latinica/20/kredit/poljoprivredni_krediti.html).

In this manuscript, we give the examples of business banks which approve agricultural credits in domestic market. The basic condition, which every user of agricultural credit has to fulfil, is that an agricultural holding is registered in the Register of Agricultural Holdings, within the applicable regulations related to registering and the registration renewal, that they are active

and have opened a purposeful bank account. What is important to mention is that, besides an interest rate paid by a credit user, he additionally pays the costs of collateral subscription or mortgage, valuations, various certificates, permissions, statements, cadastre costs and other documentation. Finally, he pays additionally the costs of deleting of bank right enrolment, as well as the insurance costs, processing of credit request, certificated of a credit bureau. All of these items burden substantially an applicant, in this case – a farmer.

BancaIntesa is one of the leading banks regarding a number of credit lines for agriculture, by an amount of approved funds and a number of approved credits. It offers more products on the market and some of them are (<http://www.bancaintesa.rs/intesafarmer-kredit/intesafarmer-kredit.116.html>):

Farmer turnover in RSD. This type of credit can be in RSD or indexed in euros. Repayment term of this credit is 24 months, while the grace period is up to 12 months. It repays in equal monthly, semi-annual and annual annuities or on maturity date. The purpose of this credit is to invest in production materials, fodder, medicines, other veterinarian costs, cattle intended for fattening, other fattening costs, etc.

Farmer invest in RSD. Credit can be approved in RSD or indexed in euros. Credit repayment term is up to 60 months for credits in RSD or up to 120 months for credits indexed in euros. The grace period for this type of credit is up to 24 months. The repayment is done in equal monthly, quarterly, semi-annual annuities. These credits are meant for the purchase of machinery, equipment, land, facilities for agricultural production, investments in greenhouses, glasshouses, permanent cropping, foundation stock, the irrigation system etc.

Credit frameworks for purchasing agricultural land. The credit is indexed in euros. The repayment term of this form of credit is 120 months, while the grace period is 12 months. It repays in equal monthly, quarterly, semi-annual or annual annuities.

Credits in cooperation with the Guarantee Fund of the Autonomous Province of Vojvodina. According to the legitimate agreement between the Guarantee Fund of AP Vojvodina and BancaIntesa, the offer of the bank is meant for financing agricultural holdings, extended with credits for the purchase of agricultural machinery and equipment, as well as the credits for financing the purchase of agricultural land. These credits are meant exclusively for purchasing combines, tractors and other self-propelled agricultural machines, agricultural working machines, as well as the purchase of equipment. The amount of credit ranges from 5,000 to 100,000 euros in RSD equivalent by the official exchange rate of the National Bank of Serbia on the day of credit disbursement. The repayment term of this type of credit is 7 years in equal semi-annual annuities.

Agro-protect – credit with insurance. This is a unique type of credit which ensures free insurance of crops from natural disasters (maize, wheat, sunflower, soy bean, barley and sugar beet). It is meant for all registered holdings in Vojvodina which are engaged in crop farming. The amount of the credit ranges from 1,000 to 100,000 euros in RSD equivalent; the repayment term is up to 12 months in monthly, quarterly or semi-annual annuities or on maturity date.

The Commercial Bank(<http://www.kombank.com/poljoprivreda>) is the only one state-owned and it approves credits to farmers in RSD, without a currency clause, with the state subsidy, Ministry of Agriculture, Forestry and Water Management. The purpose of this credit is livestock breeding development, the development of crop farming, fruit growing, vegetable growing and flower-growing, investments in a new agricultural machinery and equipment, except attested used truck for transport of built bee hives, when the allowed purchase of used vehicle is 500,000 RSD of individual value. Nominal interest rate is from 4% fixed for the livestock breeding development, to 6% fixed for other purposes, in accordance with the Regulations. The credit repayment term is 36 months from a date of credit permission, with a grace period up to 12 months. The credit repayment is in annuities: monthly, quarterly or semi-annual and one time after 12 months. Maximum amount of the credit is 5 million RSD, while the costs of credit processing are 1.5%, one time and in advance.

According to the support program to agriculture and rural development, adopted in 2016 (APV, 69/2016), there are plenty of novelties. In the previous year, subsidies were approved for:

- ✓ Purchasing the irrigation equipment,
- ✓ Anti-hail system,
- ✓ In the production of green houses and glass houses,
- ✓ In constructing and equipping the facilities for storing fruits and vegetables,
- ✓ Livestock production.

All these positions are increased by the support program for the year 2017, for example: irrigation for 35%, anti-hail nets for 20%, stimulating production in glass houses for around 33%, for warehouses for 250%, for livestock production 60%, and the highest increase is for the organic production 10000% in regard to the year 2016.

Besides the increase of budgetary financing for some positions in agricultural production, in this year are anticipated also new items such as:

- ✓ Non-repayable funds for purchasing machines for agricultural production (tractors, combines and others),
- ✓ *Star up* funds for the youth who decide to start production in rural areas.

Support to young people in rural areas by start-up funds in amount of 100 million RSD is surely the measure for which many would be interested. The amount is up to 100% of total acceptable costs, minimum 500,000 RSD, maximum 2,500.000 per user (<http://subvencije.rs/vesti/apv-usvojen-plan-bespovratna-sredstva-za-ratarske-traktore-kombajne-u-2017-oj/>).

Obtained money young people cannot use to buy land, heads of cattle and seed. For example, young people who plan to invest in a glasshouse in over 500 meters above sea level can expect a refund up to 70%. In that way, by planning a greenhouse construction on 20 a, which costs about 20,000 euros, an investor can expect the refund in amount of 14,000 euros.

ProCredit bank pays special attention to agricultural credits. This bank offers the next forms of agricultural credits(<https://www.procreditbank.rs/strana/2131>):

- ✓ Credits for the agricultural production improvement,
- ✓ Subsidized loans, in cooperation with the Ministry of Agriculture,
- ✓ Credits for the quality of life improvement,
- ✓ Cash credits.

This bank, besides crediting, also cooperates with the manufacturers of agricultural machinery, and thereby facilitates a client to purchase the machinery.

OTP Bank is also one of the banks which offer favourable agricultural credits. One of the credit types for this purpose is fast credits for working capital. The basic characteristics of these credits are (https://www.otpbanka.rs/poljoprivreda/poljoprivreda_brzi_krediti_za_obrtna_sredstva.php):

- ✓ Favourable interest rate,
- ✓ RSD credit –no currency risk,
- ✓ Credit bureau report and a bill of exchange are paid by a bank.
- ✓ Flexible repayment: interest rate monthly or quarterly, quarterly or semi-annual,
- ✓ Credit repayment within two days.

Table 2. Review of agricultural machinery suppliers

Tractor		Combines and working machines
Case	Massey Ferguson	Case
Claas	Mahindra	Claas
DeutzFahr	McCormick	John Deere
Foton	MTZ Belarus	SAMPO
Fendt	New Holland	FENDT
Europard	Rakovica	New Holland
IMT	Tafe	Sistemzanavodnjavanje
Johan Deere	UZM	Tifon
Kubota	Zetor	
	YTO	

Source: The authors according to <https://www.procreditbank.rs/strana/3531/krediti-za-unapredenje-poljoprivredne-proizvodnje> (02.01.2017).

The state provided subsidies in terms of finding the favourable financial resources in form of part of interest rate or insurance premium. The bank and insurance companies' representatives have assessed that this program will significantly contribute to the agricultural production improvement, in individual holdings, and the interest for this has been growing from year to year. The contracts are concluded with the following banks(<http://subvencije.rs/kredit/7854/>):

- Commercial Bank
- ProCredit Bank
- Credit Agricole Bank

- Hypo AlpeAdria Bank
- BancaIntesa
- Sberbank
- AIK Bank
- NLB Bank
- Unicredit Bank
- OTP Bank

On the other hand, the contracts were concluded also with insurance underwriters (<http://subvencije.rs/kredit/7854/>):

- Dunav insurance,
- Delta Generali insurance,
- DDOR Novi Sad,
- Triglav insurance,
- Globos insurance.

Various programs of the state support to agriculture

Subsidies in the field of agriculture comprise the set of different measures which is characterized by an unequalled form of internal support. Measures of the national program for agriculture and rural development of the Republic of Serbia for the period 2014-2020 (<http://www.poljosfera.rs/agrosfera/agro-teme/ostalo/nacionalni-program-za-poljoprivredu-i-ruralni-razvoj-republike-srbije/>):

- ✓ Investments in physical assets of agricultural holdings,
- ✓ Investments in processing and marketing of agricultural products and fishery products,
- ✓ Diversification of rural economy,
- ✓ Rural infrastructure,
- ✓ Creation, transfer of knowledge and the extension development,
- ✓ Measures and preservation of the environment,
- ✓ Development of forestry in rural areas,
- ✓ Preparation of the local strategies of rural development – partnership for the territorial rural development – LEADER approach.

The national program for agricultural and rural development of the Republic of Serbia 2014-2020 is an instrument for financial support in the field of rural development. It defines measures for the rural development support in accordance with the valid national legal decisions, as well as the criteria and financial framework of support. IPARD program of the Republic of Serbia means an instrument for pre-accession support in the field of rural development for the program period 2014-2020 –reaching the European standard and raising competitiveness.

The IPARD program is an instrument for the pre-accession support in the field of rural development for the period 2014-2020. This document is approved by the EU Directorate-

General for Agriculture and Rural Development. It defines measures for the rural development support in compliance with the current European Union regulations. Measures of IPARD program are as follows (<http://www.poljosfera.rs/agrosfera/agro-teme/ostalo/nacionalni-program-za-poljoprivredu-i-ruralni-razvoj-republike-srbije/>):

The first phase is:

- ✓ Investments in physical property of agricultural holdings,
- ✓ Investments in processing and marketing of agricultural products and fishery products,
- ✓ Diversification of agricultural holdings and business development,
- ✓ Technical support.

The second phase is:

- ✓ Implementation of the local strategies of rural development,
- ✓ Agro-ecological-climate measures (actions) and the organic production measures.

Table 3. Analysis of budget according to individual measures in the period 2014-2015 (in 000 euro)

Measure	2015	2016	2017	2018	2019	2020	2014-2020
Investments in physical property in agricultural holding	7,535	9,900	10,622	11,199	17,002	19,780	76,040
Investments in physical property related to the processing and sale of agricultural products and fishery products	6,164	8,099	8,690	9,162	13,910	16,182	62,210
Agro-ecological climate measures and the organic production measures	-	-	2,187	2,187	2,187	2,187	8,750
Implementation of the local developmental strategies – LEADER approach	-	-	500	1,000	1,900	1,850	5,250

Diversification of agricultural holdings	1,000	1,500	2,000	5,000	4,000	4,000	17,500
Technical support	300	500	1,000	1,450	1,000	1,000	5,250
TOTAL	15,000	20,000	25,000	30,000	40,000	45,000	175,000

Source: <http://www.poljosfera.rs/agrosfera/agro-teme/ostalo/nacionalni-program-za-poljoprivredu-i-ruralni-razvoj-republike-srbije/>, (15.01.2017).

In high developed countries, the government intervenes in four directions (Pejanović, Tica, Tomašević, 2003):

- Determines the appropriate policy of agrarian product prices,
- Determines the measures of inputs subsidizing for different types of costs,
- Determines the adequate models of financing the agrarian production and stocks,
- Subsidizing export of agrarian products.

The support to agriculture and rural development, provided by a Decree and Law, has amounted in 2014 around 34.5 milliards RSD. In comparison with the previous year, this amount is for 7.6 milliard RSD higher, which points out to a fact that funds in 2014 spent on financing incentives in agriculture and rural development were increased for 28% (Official Gazette of the Republic of Serbia, no. 8/2014, 30/2014, 116/2014, 128/2014, 137/2014 and 144/2014).

Besides the IPARD program, big incentives for agricultural development are provided also by the relevant ministry of the Republic of Serbia. That is to say, a prevailing part of a relevant ministry's budget is in function of the current measures of agrarian policy realisation. Premiums for milk, subsidies for industrial plants, recourses for inputs and the export stimulation represent basic forms of the current incentives of agricultural production in our country. Basic instrument for direction of the entrepreneurial farming development are subsidies meant for the increase of investments in the agrarian sector. Besides credits, they realise by non-repayable funds and input subsidies. Reform of the agrarian policy implies redirecting the current subsidies, which are mainly defined to so called developmental subsidies, so the most important position in the agriculture financing program in 2017, is exactly the investment in new capacities, the development-oriented policy.

Conclusion

As a subject of research in this manuscript is an issue of state impact to the production of sufficient amount of food and these products quality, while the aim of the policy is as higher as possible standard of their population. A significant role in achieving set goals plays the state interventionism and a systemic effort to solve the issue of hunger and health of population by the state impact.

Economically more developed countries surely thrive, while they easily set goals by their

policy and financial impact. Through subsidies, tax reliefs, law regulations and in other ways is realized a substantial influence to agricultural production. However, in those countries don't insist on liberalisation at all costs, and a good agricultural policy is one that provides an abundance of healthy food. In order to make success, there are very important sources of funding for subsidizing the agricultural production. The state impact by budgetary financing of the agricultural production sector provides sufficient quantity of food for domestic market, and besides there achieves a significant export of these products. Taking into consideration the potential and strength of domestic sector, we can conclude that the state encouragement would be multi-useful, as for manufacturers and consumers, as well as for the state, through a direct increase in export and more cautious tax policy, and indirectly higher budget revenues in long-term period.

Taking into consideration a level and capacity of other countries, we can tell that Serbia has a great potential for agricultural production, not only in quantitative sense, but also aiming to manufacture healthy food. Arable land area we dispose with, as well as its quality, gives us the right to assess. Geographic position of the state goes in favour of the fact that we are very close to markets, which are great in demand, but also to those very demanding in respect of products quality. Serbia has good economic relation with the Russian Federation and this trade exchange grows in respect of our agricultural products export, while the EU becomes more and more demanding regarding healthy food, where is still difficult to sell goods.

What lacks is, first of all, a low level of technical and technological competence of domestic manufacturers. Machinery is obsolete, and small percentage of arable land cultivates, along with the use of older processing technology and production. In this manuscript is given the review of the EU subsidy policies in agriculture and the conclusion is that without interventionism, the domestic market won't make more visible progress without the state impact.

The current policy of funding and the state impact on agricultural production has been characterized by direct investments per hectare of arable land, which has made possible some frauds in the process of approving and spending these funds, while the goal that was set hasn't been completely realised. Priority was given to plant production, while livestock breeding was completely neglected in this structure of funding. We know that livestock fund in Serbia has been almost destroyed, and we have good conditions for this production development. Finally can be established a fact that the level of funding for plant production was insufficient in previous years as well. The fact that the current government pays more attention to this issue, and that financing increases from year to year proves this observation. One of the important moments of budgetary financing is surely their structure, and not only purpose. From this year, the funds have been directed more to investments in agriculture, young people are given the chance to stay in the country and get involved in this activity. Perhaps an even greater stimulus for young people would be to find a way to come easier to arable land through some kind of cooperation with the state, in order to smooth the way for young people, and at the same time use the potential and increase the percentage of arable utilised land.

If we observe the domestic economy, trends we have accepted and which have resulted in the increase in GDP and increase of export, which has been mainly the result of foreign investors, and however has provided the indices of growth and development, the question of agricultural production has been arisen. The state impact is necessary, financial resources by which the state can help in agricultural production development and their spending policy should be in the context of a national interest. Production of a greater amount of food with an adequate use and respect of all agro-measures, but the production which can be competitive, along with the use of modern techniques and technology, the application of adequate tax and other measures. The second direction is healthy food production, which also requires the state interventionism, but not only in financial resources, but probably more in creating a regulatory framework that will help in overcoming barriers for selling these products on foreign markets.

Even if the forthcoming process of euro-integrations of our country takes into consideration, but also more important – a great need of agricultural sector, on the other hand, the significant change in the agrarian budget structure is inevitable. Reconsidering the state support policy to agriculture should be in direction of larger allocation of funds meant for livestock production and underrepresented branches of plant production, but also for rural development, and not only through the investment measures, but also the measures which aim generally to improve life conditions in village.

Literature:

1. Birovljev, J., Glamočanin, B., (2011). *Poljoprivreda Srbije i materijalno finansijski podsticaji u odnosu na kretanje u Evropskoj uniji*, DAES-Društvo agrarnih ekonomisa Srbije, Univerzitet u Novom Sadu, Ekonomski fakultet, Novi Sad.
2. Birovljev J., Tomić R.,(1996). *Menadžment u poljoprivredi*, Ekonomski fakultet Subotica.
3. Birovljev, J., Vojinović, Ž., Balaban, M., (2015), *Potential of agricultural production and its impact on insurance premiums*, Economics of Agriculture, Naučno društvo agrarnih ekonomista Balkana, Institut za ekonomiku poljoprivrede, Akademija ekonomskih nauku Bukurešt, Year 62, No. 3 (575-898), (ISSN- 0352-3462), Belgrade, pp.705-723.
4. Bogdanov, N., (2007), *Mala ruralna domaćinstva u Srbiji i ruralna nepoljoprivredna ekonomija*, UNDP, Beograd, ISBN 978 86 7728 075 8, pp.49-53.
5. Bogdanov, N., Babović, M.,(2012), *Radna snaga i diverzifikacija prihoda na poljoprivrednim gazdinstvima u Srbiji - stanje i izazovi za politiku ruralnog razvoja*, Zbornik radova: Primena podataka Popisa poljoprivrede 2012. u analizi stanja poljoprivrede i u planiranju agrarne politike u Republici Srbiji, Republički zavod za statistiku, Subotica, ISBN-978-8686-6161- 115-5, 2014, p. 262.
6. Brkanić, M.,(1996), *Priručnik za praksu u osiguranju i reosiguranju*, Novi Sad, 1996, p.247.
7. Bureau, JC., Mahe, LP.,(2008). *CAP reform beyond 2013: An idea for a longer view*, Notre Europe, Paris.

8. Maliva, R.G., Missimer, Th.M. (2012). *Air Lands Water Evaluation and Management*, New York, Springer, USA.
9. Mihailović, B., Cvijanović, D., Hamović, V.(2009). *Analiza investicione i izvozne aktivnosti poljoprivrede Srbije*, Ekonomika poljoprivrede, br./N° 1 (1-138), Naučno društvo agrarnih ekonomista Balkana, Institut za ekonomiku poljoprivrede, Akademija ekonomskih nauku Bukurešt, Beograd, p. 17.
10. Pejanović, R., Tica, N., Tomašević, D.,(2003). *Faktori konkurentnosti agroprivrede u procesu tranzicije u publikaciji Kompatibilnost agrarne politike SCG i zajedničke agrarne politike EU*, Institut za ekonomiku poljoprivrede Beograd, Beograd.
11. Popović, V., Simonović, V., Živković, V.(2004). *Performanse agrarnog sektora u tranziciji*, Naučni skup sa međunarodnim učešćem Poljoprivreda u tranziciji – komparativna iskustva i perspektive, Beograd, 15-16. oktobar, Institut za ekonomiku poljoprivrede, Beograd i Ekonomika poljoprivrede. Tematski zbornik, urednici: dr Rajko Bukvić, prof. dr Milan Milanović, Institut za ekonomiku poljoprivrede, Neograd.
12. Rikalović, G., Jovanović-Gavrilović, B.(2008). *Ekonomska politika i privredni razvoj*, Ekonomski fakultet Beograd, Beograd.
13. Stanković, M.,(2012), *Agrarna politika Srbije i zajednička poljoprivredna politika*, Škola biznisa, Broj 3/2012, UDC 338.43.02(497.11), str. 65.
14. Službeni glasnik Republike Srbije, Republika Srbija,(2014), broj 8/2014, 30/2014, 116/2014, 128/2014, 137/2014 и 144/2014, Beograd.
15. Tsakiris, G., Vangelis, H. (2005): *Establishing a Drought Index Incorporating Evapotranspiration*, European Water, 9/10, pp. 3-11, E. W. Publications, Athens, Greece.
16. Zakić, Z., Stojanović, Ž.,(2008). *Ekonomika agrara*, Centar za izdavačku delatnost Ekonomskog fakulteta, Beograd.
17. *Analysins of the 2003 CAP reform, OECD 2004, available at: https://www.ers.usda.gov/webdocs/publications/wrs0407/49119_wrs0407.pdf*,(12.01.2017).
18. *Banka Inteza, available at: <http://www.banaintesa.rs/intesafarmer-krediti/intesafarmer-krediti.116.html>*, (22.01.2017).
19. http://euinfo.rs/files/Publikacije-srp/31_Poljopricreda_i_EU.pdf, 10.10.2016
20. *Narodna banka Srbije, available at : http://www.tvojnovac.nbs.rs/edukacija/latinica/20/krediti/poljoprivredni_krediti.html*, 19.01.2017).
21. *Komercijalna banka Beograd, available at: <http://www.kombank.com/poljoprivreda>*, (26.01.2017).
22. *OTP banka Srbija, available at: https://www.otpbanka.rs/poljoprivreda/poljoprivreda_brzi_kredit_i_za_obrtna_sredstva.php*, (27.01.2017).
23. <http://www.poljosfera.rs/agrosfera/agro-teme/ostalo/nacionalni-program-za-poljoprivredu-i-ruralni-razvoj-republike-srbije/>, (01.02.2017).
24. <http://www.poljosfera.rs/agrosfera/agro-teme/ostalo/nacionalni-program-za-poljoprivredu-i-ruralni-razvoj-republike-srbije/>, (01.02.2017).

25. *Procredit banka Srbije*, available at: <https://www.procreditbank.rs/strana/2131>, <https://www.procreditbank.rs/strana/3531/kredit-za-unapredenje-poljoprivredne-proizvodnje>, (23.01.2017).

26. *Republika Srbija-subvencije poljoprivrednoj proizvodnji*, available at: <http://subvencije.rs/vesti/apv-usvojen-plan-bespovratna-sredstva-za-ratarske-tractore-kombajne-u-2017-oj/>, <http://subvencije.rs/kredit/7854/>, 04.02.2017).

PROGRAM DRŽAVNE PODRŠKE U KREDITIRANJU POLJOPRIVREDE

Željko Vojinović⁴, Vera Zelenović⁵, Drago Cvijanović⁶

Apstrakt

Jedna od najbitnijih privrednih delatnosti u Srbiji jeste poljoprivreda, potencijal koji za državu, koja je na putu da postane član Evropske unije, predstavlja oslonac privrednog rasta i razvoja. Integrisanje sa EU predstavlja i zadatak da se uspostavi takav model i okvir odnosa države prema poljoprivredi u cilju lakše harmonizacije nacionalne politike sa politikom EU. U današnje vreme kada raste svest o važnosti ishrane a samim tim i značaju obradivog zemljišta neophodno je posebnu pažnju posvetiti problemu nedostatka novčanih sredstava u okviru agrarne proizvodnje. Rešenje problema tehničko-tehnoloških procesa u proizvodnji prehrambenih proizvoda, posebno zdrave hrane, može da se potraži u merama unapređenja i povećanja proizvodnje kroz različite pristupe stimulisanja i subvencionisanja poljoprivrednih proizvođača. To je svakako u interesu države pa je iz tog razloga potrebno posvetiti posebnu pažnju budžetu i načinu finansiranja i drugih mera u pravcu stimulisanja svih učesnika na tržištu koji učestvuju u poljoprivrednoj proizvodnji.

Ključne reči: *poljoprivredna proizvodnja, politika finansiranja, kreditiranje, razvoj, harmonizacija.*

4 Docent, dr Željko Vojinović, Univerzitet u Novom Sadu, Ekonomskifakultet Subotica, Segedinski put br. 9-11, 24000 Subotica, Srbija, Telefon +381 24 628 030, E-mail: zeljko.vojinovic@ef.uns.ac.rs,

5 Profesor, dr Vera Zelenović, Univerzitet u Novom Sadu, Ekonomskifakultet Subotica, Segedinski put br. 9-11, 24000 Subotica, Srbija, Telefon +381 24 628 164, E-mail: vera.zelenovic@ef.uns.ac.rs.

6 Profesor, dr Drago Cvijanović, Univerzitet u Kragujevcu, Fakultet za hotelijerstvo i turizam u Vrnjačkoj Banji, Vojvođanska 5A, 36210 Vrnjačka Banja, Srbija, Telefon: +381 63 295 111, E-mail: dvcmmv@gmail.com

SOCIO-DEMOGRAPHIC CHARACTERISTICS AS DETERMINANTS OF DIFFERENCES IN PERCEPTION OF LOCAL GASTRONOMY¹

Nikola Vuksanović², Dragan Tešanović³, Bojana Kalenjuk⁴, Milijanko Portić⁵, Marija Knežević⁶

Abstract

This study aims to research differences in socio-demographic characteristics of foreign tourists in consumption of local food in the city centres Belgrade and Novi Sad, Republic of Serbia. The research was conducted on a sample of 673 respondents. The results of this study point out the importance of socio-demographic variables in research of local gastronomy as a significant component of tourism product. The research included the determining of the impact of the city the tourists stayed at. The differences were examined via two-factor ANOVA analysis of variance. The obtained results indicate that there are differences between age groups, in the level of education, monthly income and countries that foreign tourists come from, whereas there is no difference between genders in relation to the perception of local gastronomy. At the same time, the findings indicate that there are no differences in the perception of local gastronomy between the cities of Novi Sad and Belgrade. The results confirm previous studies and point out the significance of socio-demographic characteristics

- 1 This Research Paper was the part of the projects No. 46009 and 46005, financed by Serbian Ministry of Education, Science and Technological Development.
- 2 Nikola Vuksanović, M.Sc., Teaching Assistant, Higher education school for management and business communication, Department of Hospitality, Mitropolita Stratimirovića Street no. 110, 21205 Sremski Karlovci, Republic of Serbia, Phone: +381 63 19 68 770; E-mail: vuksanovicnikola@yahoo.com
- 3 Dragan Tešanović Ph.D., Full Professor, University of Novi Sad, Faculty of Science, Department of Geography, Tourism and Hotel Management, Dositeja Obradovića Square no. 3, 21000 Novi Sad, Republic of Serbia, Phone: +381 63 541 436, E-mail: tesanovic.dragan@gmail.com
- 4 Bojana Kalenjuk Ph.D., Associate Professor, University of Novi Sad, Faculty of Sciences, Department of Geography, Tourism and Hotel Management, Dositeja Obradovića Square no. 3, 21000 Novi Sad, Republic of Serbia, Phone: +381 64 19 90 235, E-mail: bojanakalenjuk@yahoo.com
- 5 Milijanko Portić Ph.D., Associate Professor, University of Novi Sad, Faculty of Science, Department of Geography, Tourism and Hotel Management, Dositeja Obradovića Square no. 3, 21000 Novi Sad, Republic of Serbia, Phone: +381 63 814 47 39, E-mail: porticprof@yahoo.com
- 6 Marija Knežević Ph.D., Associate Professor, Faculty of Tourism and Hotel Management, Jovana Dučića Street no. 23a, 78000 Banja Luka, Republic of Srpska, Phone: +387 65 512 894, E-mail: marija.knezevic@hotmail.com

of foreign tourists in their perception of local gastronomy and adapting it to the visitors, regardless of the city they visited.

Key words: *socio-demographic characteristics, tourists, local gastronomy, The Republic of Serbia*

JEL: *J1, J19, Z3, Q1, Q19*

Introduction

In the subject literature, the need to research the interest of tourists and food preferences in a destination (Mak et al., 2012a) from the aspect of hospitality and tourism has been emphasized by a greater number of researchers (Chang et al., 2010; Stewart et al., 2008). This increasing interest is fostered by a growing number of destinations, such as Australia, New Zealand, Italy and Singapore, which use all of their culinary resources in promoting and differentiating their own destinations (Chang et al., 2010; Scarpato, 2002).

Mak et al., (2012b) have through the analysis of literature in hospitality and tourism and by synthesis of the results of the consumption of local food, been able to recognize socio-demographic characteristics as a significant factor of influence on food consumption in a tourist destination. According to the authors' knowledge, the conclusion is, based on the analysed literature, that no similar research activities have been conducted so far, except for certain studies which refer to evaluation of hotel service quality (Blešić et al., 2009), satisfaction of foreign tourists staying in city centres (Dwyer et al., 2014), influence that image and total satisfaction with destination have on loyalty of consumers (Armenski et al., 2011), influence of structure of the employees on sensor quality in Belgrade restaurants (Tešanović et al., 2014) as well as possibility of exporting agricultural and alimentary products of plant and animal origin to the tourist boats (Tešanović et al., 2013; Tešanović et al., 2015), which provides space for further research. This study aims to research differences in socio-demographic characteristics of foreign tourists in consumption of local food in the city centres Belgrade and Novi Sad, Republic of Serbia.

Perception of tourists on local gastronomy

Perception is defined as “the way that one selects, organizes and interprets the stimuli into a meaningful and coherent picture of the world” (Schiffman, Kanuk, 2009). In short, perception is the way “we see the world around us”. By the use of their five senses (sight, smell, taste, hearing and touch), consumers are able to perceive the specific attributes of stimuli (e.g. packaging and advertisement) and understand the stimulant further.

In the literature relating to this subject, the attributes (items) of local gastronomy that encourage individuals to taste it, are related to the characteristics of food and beverages that can be perceived by senses (sight, smell, taste, touch and hearing) (Kivela, Crotts, 2006). Responding to these senses, the attributes (questions and items) of local gastronomy in this study include *visual appearance, taste and the aroma of food and drinks, the authenticity of the cuisine and its cultural significance.*

Visual appearance – the visual appearance which includes color, shape and the presentation of food, encourages tourists to taste local cuisine. Numerous studies argue that the perception of taste is influenced by the color of food (Stroebele, Castro, 2004; Kivela, Crotts, 2006).

Taste – taste is also an important attribute for the measurement of local food and drinks. Six basically recognizable tastes in gastronomy are: sweet, salty, sour, bitter, spicy (a sensation produced by, among others, hot or chili peppers) and pungent, in Chinese culinary arts (also known as umami) (Kivela, Crotts, 2006).

Aroma – aroma is another attribute appearing as an item for testing the perception of food and beverages. Scientific research suggests that olfactory stimulation plays an important part in the perception of taste; without it one cannot assess food (Gong, 2008). At the same time, the aroma can be the final attribute in measuring local food and beverages related to sensory assessment, which is the overall sensation induced during mastication (e.g. taste, touch, pain and smell) (Hornung, Enns, 1986).

Authenticity of cuisine – authenticity is an important attribute of local gastronomy. It is defined as something that is considered to be true and clear (Tešanović et al., 2009). In the context of cuisine, the authenticity relates to origin.

Cultural significance – researchers believe that the cultural characteristics of food and beverages are one of the reasons why food and beverages consumption is an integral part of the travel experience (Bessière, 1998; Long, 2004).

The importance of socio-demographic characteristics

Numerous studies (Kim et al., 2009; Khan, 1981; Ignatov, Smith, 2006; Mitchell, Hall, 2003) indicate that demographic and socio-economic characteristics of tourists influence their preferences towards local food. In studies related to consumption of food, socio-demographic characteristics are recognized as significant variables in explaining variations in food consumption in various contexts (Furst et al., 1996; Khan, 1981; Randall, Sanjur, 1981). Based on the conducted research, the text that follows gives a review of socio-demographic variables which occur in the subject literature most frequently:

Gender – the conducted studies point out that female respondents, as compared to male, are more interested in and more excited about degustation of local food when they are on vacation (Kim et al., 2009), that they are much more involved in food related activities (Ignatov, Smith, 2006) and that they are more price sensitive and, at the same time, ready to taste new or unusual fruit and vegetables (Mitchell, Hall, 2003). Also, the studies (Charters, Ali-Knight, 2002; Warde, Martens, 2000) have shown that the tendency to travel abroad, among foreign tourists, is higher among men than women.

Age – the study indicates that the consumption of selection of available food at certain destination is narrowed in elder respondents (Tse, Crotts, 2005) and that they are more health concerned (Kim et al., 2009).

Education – the conducted studies indicate: that the respondents with higher education level

are more health concerned (Kim et al., 2009), that higher education level increases food related sensation (Glanz et al., 1998) and that the respondents with higher education level have more tendencies towards local food consumption (Zeppel, Hall, 1991). Wadolowska et al., (2008) point out that the respondents with primary education level have a negative or neutral perception of food.

Monthly income – the conducted studies indicate that higher monthly income increases food related sensation (Glanz et al., 1998) and that better job can be an important factor in selection of food (Wadolowska et al., 2008), while Franklin and Crag (2001) point out that the increase of monthly income in households has an important role in tourist demand.

Country – the results of the study (Armenski et al., 2011; Dwyer et al., 2014) point out the increase of foreign tourists from Western European countries into Republic of Serbia. Lukić et al., (2014) mention numerous political, economic and social changes which have influenced a large number of migrations among former Yugoslavian republics, and which has impacts on tourist consumption in Republic of Serbia.

According to the review of the studies conducted so far (Kim et al., 2009; Khan, 1981; Ignatov, Smith, 2006; Mitchell, Hall, 2003; Furst et al., 1996; Randall, Sanjur, 1981), the authors have defined the following hypothesis: *There are statistically significant differences in the perception of local gastronomy in relation to socio-demographic characteristics of foreign tourists.*

Sample

The target population included in this research is comprised of foreign tourists whose visits were registered at the territory of Belgrade and Novi Sad, Republic of Serbia. According to the data obtained from the Statistical Office of the Republic of Serbia, Novi Sad was visited by 78,852 (<http://webrzs.stat.gov.rs/>) foreign tourists during the year 2014 (May-October), while, during the same year, Belgrade was visited by 535,107 (<http://webrzs.stat.gov.rs/>) foreign tourists, as compared to other tourist destinations such as Kragujevac (10,680) and Subotica (17,842) (Statistical Office of the Republic of Serbia, 2015). During the mentioned months, according to the Institute for Statistics of Serbia (Statistical Office of the Republic of Serbia, 2015), the largest number of foreign tourists was reported in Belgrade and Novi Sad, as compared to Kragujevac and Subotica. Apart from a number of visits of foreign tourists, as one of three criteria considered in selection of a place to conduct research, another two criteria were taken based on Tourism Development Strategy of the Republic of Serbia for 2005-2015 and Law on Tourism⁷, where Belgrade and Novi Sad were defined as tourist destinations of the first category. Therefore, locations of the research are administrative centres Belgrade and Novi Sad.

Sampling method is stratified sample and “simple random sample”. According to the data taken from the official tourist statistics (Statistical Office of the Republic of Serbia, 2015), the

7 In accordance with Article 26, Law on Tourism (“Official Gazette RS” No. 36/09, 88/10, 99/2001 –2nd law 93/2012 and 84/2015).

only information that the authors were familiar with and which was on their disposal is the number of registered visits of foreign tourists, by location and type of the tourist destination, as prescribed by the official statistics methodology. Stratums are cities in the Republic of Serbia visited by foreign tourists (Statistical Office of the Republic of Serbia, 2015). Because of the aforesaid criteria, the authors decided to take Belgrade and Novi Sad as stratums. After that, each stratum was analysed by means of “simple random sample” procedure. Surveying was carried out through tourist organizations of Belgrade and Serbia, at the territory of Belgrade, while tourist organizations of Novi Sad and Vojvodina carried out the survey in Novi Sad, that is, each foreign tourist that visited any organization was considered a random sample.

The study included 673 respondents of which 332 were in Novi Sad and 342 in Belgrade. Out of the total number of respondents, 51.3% were male and 48.7% female (Table 1). Table 1 presents the age structure of the sample by city of research. Almost half of the respondents are younger people, 18 to 30 years of age. Other socio-demographic characteristics of the respondents are shown in Table 1.

Table 1. Socio - demographic characteristics of respondents

Gender	Novi Sad	Belgrade	Total
Male	188	157	345
Female	144	185	328
Age categories (in years)			
18 – 30	178	138	316
31 - 40	76	91	167
41 - 50	38	55	93
51 - 60	30	42	72
Over 60	8	16	24
Education level			
High school	60	55	115
College	135	93	228
University – BSc	70	45	115
University – MSc	40	65	105
University - PhD	18	76	94
Monthly income by household			
Below average	69	47	116
Average	165	203	368
Above average	93	88	181
Country			
Yugoslavian republics	170	136	306
Western Europe countries	122	150	235
Southern Europe countries	29	36	65
Eastern Europe countries	11	20	31

Source: authors, based on research

Instrument

For the purpose of this study, and following the example of previous studies (Jalis et al., 2009), a questionnaire was used in order to test the difference between socio-demographic characteristics of foreign tourists in the perception of local gastronomy.

For the purpose of this study, the questionnaire was modified and adapted. After the translation of the questionnaire from English to Serbian language, it was subjected to translation again in order to determine trustworthiness (back translation). Further on, an interview with tourism representatives (academic experts, employees in hotels and representatives of tourist organizations), in which experts provided their comments and suggestions on which attributes are to be considered when designing the scale for testing the perception of food, beverages and food culture of Serbia (the perception of local gastronomy). The discussion and interviews with experts had an aim to increase the content validity of the scale and to supplement or change attributes – questions in the questionnaire. Based on qualitative research, it has been concluded that the term “Malaysian food” should be changed to “Local food”, since previous studies (Baloglu, McCleary, 1999) have shown that the notion of “local food” contributes to the popularity of a tourist destination and consumption of food. In a research conducted in four Mediterranean countries, Italy has achieved the greatest success using the term “local food” or local cuisine (Baloglu, McCleary, 1999). Further on, it was concluded that items 1, 5, 6, 8, 9, 23, 26, 27 and 30, i.e. the concept of “Malaysian food” should be changed to “Serbian food”.

The questionnaire consists of three parts. The first part of the questionnaire represents respondents’ consent to complete the questionnaire. Completing the questionnaire is anonymous. The second part relates to demographic and socio-economic characteristics of respondents: gender, age, education level, monthly income and place of residence (country). The third part of the questionnaire relates to the perception of local gastronomy (Table 2), which contains 30 items. In the questionnaire, the concept of collecting and processing stands is defined as the level at which tourist perception of attributes shows perception and acceptability of local food and beverages as an experience related to food culture on a tourist destination. The answers in a questionnaire were measured based on the Likert scale, 1 – I strongly disagree, 2 – I mostly disagree, 3 – neutral, 4- mostly agree, 5 – I completely agree.

Procedure

The survey was conducted on the territory of Belgrade and Novi Sad, during six months of research (May-October) in 2015, and in accordance with reports of the Statistical Office of the Republic of Serbia referring to the structure of foreign tourists by the visited city (Statistical Office of the Republic of Serbia, 2015). It was executed through tourist organizations of Serbia, Belgrade, Vojvodina and Novi Sad. Because the survey was carried out by means of “paper and pen” procedure, it was of utmost importance to have skilful surveyors that would be able to provide good explanations of questions if respondents would ask for it.

Variables

Independent variables in this study are the following: gender, age, education, monthly income and country. There is also one dependent variable - perception of local gastronomy.

Methods of data analysis

Data were analysed by means of software package SPSS: 20 (SPSS, 2008). The missing data were replaced by EM method, while analyses of deviated values indicate that there are none (Tabachnick, Fidell, 2007).

Differences between groups were analysed by means of two-factor ANOVA, with the following factors: city (2 levels), gender (2 levels), age (5 levels), education (6 levels), monthly income (3 levels) and the country (4 levels). Dependent variable is perception of local gastronomy.

Results

Descriptive analysis

Table 2. presents descriptive analysis of the scale items for perception of local gastronomy. The perception of local gastronomy is operationalized as the sum of responses to all 30 items from the third part of the questionnaire. A higher score indicates a better assessment of local gastronomy.

Table 2. Descriptive analysis of the scale items for perception of local gastronomy

Items	Novi Sad		Belgrade	
	M	SD	M	SD
1. Serbia offers great choices of food and beverages	4.64	.647	4.64	.66
2. Most of the Serbian food and beverages are freshly prepared	4.51	.675	4.47	.70
3. Most of the Serbian food and beverages are acceptable	4.69	.624	4.65	.69
4. Apart from exploring the country, my intention was to learn about Serbian cuisine, beverages and dining cultures	3.83	1.16	3.73	1.12
5. The identity of every Serbian ethnic group can be noticed through their cuisine	3.93	1.00	3.82	1.00
6. Serbia also offers a great variety of snacks (crackers, preserved foods)	4.23	.89	4.10	.97
7. The taste of most Serbian snacks is acceptable	4.44	.77	4.28	.88
8. Some Serbian food and beverages are recognized internationally	4.09	1.03	4.03	1.20
9. Most of the Serbian snacks are as good as snacks from other countries	4.34	.79	4.36	.83
10. The taste of local canned beverages is acceptable as the imported ones	4.25	.92	4.09	1.03
11. The quality of Serbian canned beverages is as good as freshly prepared	3.79	1.17	3.69	1.27
12. Most of Serbian beverages look attractive	4.22	.87	4.04	.99

Items	Novi Sad		Belgrade	
	M	SD	M	SD
13. Most of the Serbian food is salty	4.09	1.05	4.10	1.02
14. Most of the Serbian food tastes good	4.75	.55	4.71	.58
15. Most of the Serbian food is usually served hot	4.44	.74	4.49	.74
16. The aroma of Serbian food is adorable	4.48	.75	4.45	.83
17. Most of the Serbian food contains too much carbohydrate	3.75	1.05	3.83	.99
18. Most of the Serbian food is too spicy	3.22	1.24	3.21	1.19
19. There is too much chili paste in most of the Serbian food	3.00	1.28	2.96	1.27
20. Most of the Serbian main dishes are fat/oily	3.93	1.08	3.98	1.03
21. Most of the Serbian delicacies and beverages are too sweet	3.31	1.08	3.40	1.11
22. Serbian food culture is unique	4.05	.96	4.22	.87
23. Serbian food culture has its own identity as other European countries	4.26	.89	4.29	.86
24. The way most Serbian food and beverages are prepared attracts me	4.30	.88	4.19	.98
25. Some of the Serbian cooking styles are attractive	4.20	.91	4.17	.97
26. The use of traditional equipment in preparing some Serbian dishes truly portrays a Serbian culture	4.20	.86	4.15	.89
27. Serbia is rich in traditional eating manners	4.30	.85	4.17	.92
28. Different styles of ethnic groups' eating manners represent the uniqueness of Serbian food culture	4.04	.90	4.04	.95
29. Attending local food festivals/manifestations and trying out food at street markets are one of the main attractions of Serbian food culture	4.06	1.00	4.04	1.01
30. Preparation and tasting Serbian food at local food festivals/manifestations and street markets represent another element of Serbian food culture	4.15	.99	4.13	.95

Source: authors, based on research

Table 3. presents descriptive analysis of applied scales. Based on the values of multivariate skewness and kurtosis, it can be concluded that the answers of respondents at the “*perception of local gastronomy*” scale do not deviate significantly as compared to normal distribution. Cronbach terms are .85 (Table 3), whereas according to the authors’ research (Jalis et al., 2009) the reliability of the scale is .81.

Table 3. Descriptive scale indicators

Scale	Min	Max	M	SD	Skew.	Kurt.	K-S	α
Perception	74.00	151.23	122.96	12.41	-.800	1.101	0.097*	0.85

Note. * $p < 0.1$: Min. – minimal score; Max. – maximal score; M – arithmetic mean; SD – standard deviation; Skew. – Skewness; Kurt. – Kurtosis; K-S – Kolmogorov–Smirnov statistics; α – scale reliability measured by internal consistency

Source: Processing data from survey research

The results of T-test for independent samples show that there is none statistically significant difference between foreign tourists who visited Belgrade ($M=122.45$, $SD=12.29$) and Novi Sad ($M=123.48$, $SD=12.56$). The value of T-test is 0.23, and it is not statistically significant ($p=0.27$). The results have shown that foreign tourists who visited Novi Sad have positively assessed local gastronomy in a somewhat more pronounced degree in relation to tourists who visited Belgrade.

Differences in demographic characteristics of tourists in perception of local gastronomy

The results of two-factor analysis with the factors: **gender** (2 levels) and city (2 levels) show that there is no statistically significant interaction of gender and city ($F(1, 669) = 0.67$, $p=0.42$), nor the main effects of gender ($F(1, 669) = 0.50$, $p=0.48$) and city ($F(1, 669) = 0.95$, $p=0.33$). On the other hand, male tourists from Novi Sad show only a tendency towards a more positive assessment of local gastronomy, compared to other groups of respondents.

The results of two-factor analysis including the factors: **age** (5 levels) and city (2 levels) show that there is no significant interaction between age and city ($F(4, 662) = 0.45$, $p = 0.77$), nor the main effect of the city ($F(1, 662) = 1.89$, $p=0.16$), but there is a significant main effect of age ($F(4, 662) = 5.58$, $p < 0.00$, $\eta_p^2 = 0.02$). Post hoc test (Tukey's HSD) shows that there is a significant difference between respondents in the category of 18-30 years ($M=122.48$) and the respondents who fall into the category 51-60 years ($M=126.85$, $p < 0.05$). Further on, the same post hoc test shows that there is a difference between respondents who are 31-40 years old ($M=124.97$) and the respondents who are 41-50 years old ($M=124.97$, $p < 0.02$), as well as in relation to respondents who fall in the category between 51-60 years of age ($p < 0.00$).

The results of two-factor analysis of the factors: **education** (5 levels) and city (2 levels) show that there is no statistically significant interaction between education and city ($F(4, 662) = 1.16$, $p=0.33$), neither is there the main effect of the city ($F(1, 662) = 0.17$, $p=0.68$), but there is a significant main effect of education ($F(4, 662) = 2.52$, $p < 0.05$, $\eta_p^2 = 0.04$). The results indicate that regardless of the city they were staying in, there is a significant difference between the respondents of different educational level in the perception of local gastronomy. Post hoc test (Fisher's LSD), has shown that there is a significant difference between respondents who have high school ($M=125.85$) and the ones who have a university degree – BSc ($M=122.13$; $p < 0.05$), the respondents who have high school and the ones who have university degree – MSc ($M=121.73$; $p < 0.01$) and respondents who have high school and the ones who have a university degree – PhD ($M=121.27$; $p < 0.00$).

The results of two-factor analysis with the factors: **monthly income** (3 levels) and city (2 levels) show a statistically significant interaction between monthly income and city ($F(2, 659) = 8.07$, $p < 0.00$, $\eta_p^2 = 0.02$), as well as not that significant main effects of monthly income ($F(2, 665) = 1.80$, $p=0.16$) and the city ($F(1, 665) = 0.09$, $p=0.76$). Post hoc test (Tukey's HSD) shows that there is a difference between respondents from Novi Sad with below average income ($M=119.62$) and the ones with average income ($M=124.91$; $p < 0.05$). Also, a significant difference was noticed between respondents from Novi Sad with below

average income and respondents from Belgrade with the same income ($M=126.73$; $p<0.05$) in the perception of local gastronomy. Further on, differences have been shown between the respondents from Belgrade with below average income and with above average income ($M=119.67$; $p<0.01$) in the perception of local gastronomy.

The results of two-factor analysis of the factors: **country** (4 levels) and city (2 levels) indicate that there is no significant interaction of variables of country and city ($F(4, 664) = 0.70$, $p = 0.59$) nor is there a significant effect of the city ($F(1, 664) = 1.01$, $p = 0.31$). However, there is a significant main effect of the variable of country ($F(4, 664) = 8.45$, $p < 0.001$, $\eta^2_p = 0.04$) when it comes to the perception of local gastronomy. These results show that respondents from various countries differ in the perception of local gastronomy, regardless of the city they visited. Post hoc test (Tukey's HSD) shows that respondents from the countries of former Yugoslavian countries ($M=125.89$) differ from respondents from Western Europe countries ($M=120.06$; $p < 0.01$), as well as from respondents from Southern Europe countries ($M=120.13$; $p < 0.05$). In other words, respondents originating from the countries of Yugoslavian republics at a higher level assess local gastronomy in a more positive way, in relation to above mentioned groups of countries.

Discussion

The results indicate that there are differences between variables: age, level of education, monthly income and country in the perception of local gastronomy, but not in variable gender. The findings indicate that there is only a tendency that men who have visited Novi Sad, in relation to other groups of respondents are more inclined in the perception of local gastronomy. The obtained results are contrary to previous researches. However, the results of the study (Charters, Ali-Knight, 2002; Warde, Martens, 2000) show that in relation to women, men are more inclined to travel abroad, as for foreign tourists. The findings indicate that there is a difference between age variable in the perception of local gastronomy. More precisely, respondents who belong to an older category, assess local gastronomy in a more positive way, which is in accordance with previous researches. Possible differences between groups of respondents with level of education variable, where respondents with a lower education level assess local gastronomy in a more positive way, can be explained by the fact that they were willing to try more food and drinks compared to other groups of respondents. It can be assumed that respondents with lower level of education are less concerned about health than respondents with a higher level of education (Kim et al., 2009). The obtained results are contrary to previous researches. The results of monthly income variable indicate a different trend of differences: respondents from Novi Sad with below average income tend to positively assess local gastronomy to a lesser extent, in relation to respondents with higher monthly income. On the other hand, respondents from Belgrade with below average income tend to positively assess local gastronomy to a higher extent, in relation to respondents with a higher monthly income. Previous research (Glanz et al., 1998; Wadolowska et al., 2008) point out that a higher monthly income and a better job increase the experience and choice of food, which is in accordance with results obtained in Novi Sad. However, the findings in Belgrade are contrary to the above-mentioned research. It can be assumed that respondents with a

higher monthly income did not get “proper value for money” or their expectations were not satisfied. The findings indicate that the greatest number of foreign tourists who participated in this research is from former Yugoslavian countries and secondly from Western European countries. A justification for this can be found in the fact that The Republic of Serbia suffered many changes during the 90s in the XX century (Lukić et al., 2014), thus, the biggest number of foreign tourists comes from former Yugoslavian countries. In addition to this, previous studies confirm a tendency for visits of the Republic of Serbia by tourists from Western European countries (Armenski et al., 2011; Dwyer et al., 2014), which is in accordance with obtained results. According to authors’ findings, differences between Belgrade and Novi Sad in the perception of local gastronomy have not been examined so far (Armenski et al., 2011; Blešić et al., 2009; Dwyer et al., 2014; Tešanović et al., 2014; Tešanović et al., 2013; Tešanović et al., 2015), so this paper provides a new insight into the significance of local gastronomy at the localities tested.

The findings of the study indicate that there are statistically significant differences between socio-demographic characteristics of foreign tourists in relation to variables of age, level of education, monthly income and country, but not gender, in the perception of local gastronomy, which makes the *hypothesis partially supported*.

Research limitations

One of the limitations of the study is the sample. Although the respondents involved in this study had different experiences in local gastronomy and were of different nationalities, majority of tourists that took part in the study come from the countries of former Yugoslavian republics and Western European countries. Also, the research included two tourist centres, which means that it excludes other tourist destinations where local food can be found as well. Therefore, tourist destinations such as spa centres and mountain resorts should be taken into consideration in future studies.

Conclusion

The significance of this research comes from the fact that so far there has not been a similar research regarding Republic of Serbia and the cities of Belgrade and Novi Sad. The results indicate which socio-demographic characteristics of foreign tourists are important for future development plans and promotions of a given destination on a target market. At the same time, the findings indicate the importance of socio-demographic variables in the study of local gastronomy as a significant component of the tourism product. For example, if companies (hotels, restaurants etc.) want to increase the perception of local gastronomy, they can apply this instrument to examine the structure of tourists, that is socio-demographic characteristics in order to track their requirements and needs.

The obtained data can be of use to various market subjects in order to establish special bodies in order to regulate and monitor the work of companies and tourist organizations, disclosure of inappropriate enterprise behavior, publishing information related to local gastronomy and dealing with tourists’ complaints. Monitoring reduces dissatisfaction and improves positive

evaluation of local gastronomy. At the same time, this can increase overall satisfaction of tourists with chosen destinations. In addition, this research makes it possible for the sectors of economy and government to understand better the significance of local gastronomy, as part of the destination, and thus how to improve acceptability with foreign tourists.

The findings of this study indicate that there are no differences between the cities of Belgrade and Novi Sad in the perception of local gastronomy, which can serve as the starting point to enter the partnership between the cities and for the development of a common strategy. First of all, the cooperation of tourist organizations and other sector, first at the local and then at regional level, can take responsibility for monitoring the work of companies dealing with food and beverages at a certain destination.

The results of the research rely on single-year research. However, taking into consideration the very concept of the research, it would be more appropriate to carry out longitudinal, multi-year research with the same group or respondents and repeated measures, in order to form a clear and precise image of factors influencing local food consumption. Repeated studies would require forming of the sample population that would participate in the research during the period of 5 to 10 years. The results of longitudinal research would have significant theoretical, but also practical implications for a tourist destination, particularly from the aspect of long-term planning of marketing strategies and creation of tourist sensation and feeling towards changeable requests and needs of tourist demand.

Literature

1. Armenski, T., Gomezelj, D. O., Djurdjev, B., Deri, L., Aleksandra, D. (2011): *Destination competitiveness: A challenging process for Serbia*, Human Geographies, vol. 5, no. 1, pp. 19.
2. Baloglu, S., McCleary, K. W. (1999): *US international pleasure travelers' images of four Mediterranean destinations: A comparison of visitors and nonvisitors*, Journal of travel research, vol. 38, no. 2, pp. 144-152.
3. Bessière, J. (1998): *Local development and heritage: traditional food and cuisine as tourist attractions in rural areas*, Sociologia ruralis, vol. 38, no. 1, pp. 21-34.
4. Blešić, I., Romelić, J., Garača, V. (2009): *An investigation of the expectations and perceptions of consumers about the quality of services in the spa hotels of West Morava region*, Glasnik Srpskog geografskog društva, vol. 89, no. 1, pp. 103-114.
5. Chang, R. C., Kivela, J., Mak, A. H. (2010): *Food preferences of Chinese tourists*, Annals of Tourism Research, vol. 37, no. 4, pp. 989-1011.
6. Charters, S., Ali-Knight, J. (2002): *Who is the wine tourist?*, Tourism management, vol. 23, no. 3, pp. 311-319.
7. Dwyer, L., Dragičević, V., Armenski, T., Mihalić, T., Knežević Cvelbar, L. (2014): *Achieving destination competitiveness: an importance-performance analysis of Serbia*, Current Issues in Tourism, pp. 1-28.
8. Franklin, A., Crang, M., (2001): *The trouble with tourism and travel theory*, Tourist Studies, vol. 1, no. 1, pp. 5-22.
9. Furst, T., Connors, M., Bisogni, C. A., Sobal, J., Falk, L. W. (1996): *Food choice: a*

- conceptual model of the process*, *Appetite*, vol. 26, no. 3, pp. 247-266.
10. Glanz, K., Basil, M., Maibach, E., Goldberg, J., Snyder, D. (1998): *Why Americans eat what they do: taste, nutrition, cost, convenience, and weight control concerns as influences on food consumption*, *Journal of the American Dietetic Association*, vol. 98, no. 10, pp. 1118-1126.
 11. Gong, H. N. (2008): *How is the arrival of things possible?*, *Frontiers of Philosophy in China*, vol. 3, pp. 389-408.
 12. Hornung, D. E., Enns, M. P. (1986): *The contributions of smell and taste to overall intensity: A model*, *Perception & psychophysics*, vol. 39, no. 6, pp. 385-391.
 13. Ignatov, E., Smith, S. (2006): *Segmenting Canadian culinary tourists*, *Current Issues in Tourism*, vol. 9, no. 3, pp. 235.
 14. Jalis, M. H., Zahari, M. S., Zulkifly, M. I., Othman, Z. (2009): *Malaysian gastronomic tourism products: Assessing the level of their acceptance among the western tourists*, *South Asian Journal of Tourism and Heritage*, vol. 2, no. 1, pp. 31-44.
 15. Khan, M., (1981): *Evaluation of food selection patterns and preferences*, *CRC Critical Reviews in Food Science and Nutrition*, vol. 15, pp. 129–153.
 16. Kim, Y. G., Eves, A., Scarles, C. (2009): *Building a model of local food consumption on trips and holidays: A grounded theory approach*, *International Journal of Hospitality Management*, vol. 28, no. 3, pp. 423-431.
 17. Kivela, J., Crofts, J. C. (2006): *Gastronomy tourism: A meaningful travel market segment*, *Journal of Culinary Science & Technology*, vol. 4, no. 2-3, pp. 39-55.
 18. Law on Tourism (“Official Gazette RS” No. 36/09, 88/10, 99/2001 –2nd law 93/2012 and 84/2015).
 19. Long, L. M. (2004): *Culinary Tourism*, The University Press of Kentucky, Kentucky.
 20. Lukić, T., Penjišević, I., Đerčan, B., Đurđev, B., Bubalo Živković, M., Armenski, T. (2014): *Politics in the Balkan countryside: case study in Serbia*, *Eastern European Countryside*, vol. 20, pp. 99-124.
 21. Mak, A. H., Lumbers, M., Eves, A. (2012a): *Globalisation and food consumption in tourism*, *Annals of Tourism Research*, vol. 39, no. 1, pp. 171-196.
 22. Mak, A. H., Lumbers, M., Eves, A., Chang, R. C. (2012b): *Factors influencing tourist food consumption*, *International Journal of Hospitality Management*, vol. 31, no. 3, pp. 928-936.
 23. Mitchell, R. D., Hall, C. M. (2003): *Seasonality in New Zealand winery visitation: An issue of demand and supply*, *Journal of Travel & Tourism Marketing*, vol. 14, no. 3-4, pp. 155-173.
 24. Randall, E., and Sanjur, D. (1981): *Food preferences—their conceptualization and relationship to consumption*, *Ecology of food and nutrition*, vol. 11, no. 3, pp. 151-161.
 25. Scarpato, R. (2002): *Gastronomy as a tourist product: The perspective of gastronomy studies*, *Tourism and gastronomy*, pp. 51-70.
 26. Schiffman, L., Kanuk, L. (2009): *Consumer behavior* (10th edition). New Jersey: Prentice Hall.

27. Statistical Office of the Republic of Serbia, (2015). (available at: <http://webrzs.stat.gov.rs/WebSite/Public/PageView.aspx?pKey=182>. Retrieved: 25.9.2015).
28. Stewart, J. W., Bramble, L., Ziraldo, D. (2008): *Key challenges in wine and culinary tourism with practical recommendations*, International Journal of Contemporary Hospitality Management, vol. 20, no. 3, pp. 303-312.
29. Stroebele, N., De Castro, J. M. (2004): *Effect of ambience on food intake and food choice*, Nutrition, vol. 20, no. 9, pp. 821-838.
30. Tabachnick, B. G., Fidell, L. S. (2007): *Using Multivariate Statistics*, 5th edn., Pearson, Boston, MA.
31. Tešanović, D., Kalenjuk, B., Blešić, I. (2009): *Struktura gastronomske ponude na salašima i njen uticaj na razvoj seoskog turizma*, Turističko poslovanje, vol. 4, pp. 103-110.
32. Tešanović, D., Krasavčić, M., Kalenjuk, B., Portić, M., Gagić, S. (2014): *The influence of the structure of employees on sensory quality of restaurants food*, British Food Journal, vol. 116, no. 3, pp. 527 - 543.
33. Tešanović, D., Vuksanović, N., Kalenjuk, B., Portić, M. (2015): *Tourist Ships On The Danube As An Opportunity For Export Of Meat And Meat Products*, Economics of Agriculture, vol. 62, no. 2, pp. 527-542.
34. Tešanović, D., Vuksanović, N., Kalenjuk, B., Vukić, M., Gagić, S. (2013): *Danube tourist ships as an opportunity for export of agricultural and food products*, Economics of Agriculture, vol. 60, no. 1, pp. 179-194.
35. Tourism Development Strategy of the Republic of Serbia (2005). Ministarstvo trgovine, turizma i usluga, Republike Srbije. Horwath consulting i Ekonomski fakultet, Univerzitet u Beogradu.
36. Tse, P., Crotts, J. C. (2005): *Antecedents of novelty seeking: International visitors' propensity to experiment across Hong Kong's culinary traditions*, Tourism Management, vol. 26, no. 6, pp. 965-968.
37. Wadolowska, L., Babicz-Zielinska, E., Czarnocinska, J. (2008): *Food choice models and their relation with food preferences and eating frequency in the Polish population*, Food Policy, vol. 33, pp. 122-134.
38. Warde, A., Martens, L. (2000): *Eating out: Social differentiation, consumption and pleasure*, Cambridge University Press.
39. Zeppel, H., Hall, C. M. (1991): *Selling art and history: cultural heritage and tourism*, Journal of Tourism Studies, vol. 2, no. 1, pp. 29-45.

**SOCIO – DEMOGRAFSKE KARAKTERISTIKE KAO DETERMINENTE
RAZLIKA U PERCEPCIJI LOKALNE GASTRONOMIJE⁸**

*Nikola Vuksanović⁹, Dragan Tešanović¹⁰, Bojana Kalenjuk¹¹, Milijanko Portić¹²,
Marija Knežević¹³*

Rezime

Cilj studije je ispitivanje razlika u percepciji lokalne gastronomije u odnosu na socio - demografske karakteristike stranih turista sa uvažavanjem gradskih centara u kojima su boravili, Beograd i Novi Sad u Republici Srbiji. Istraživanje je sprovedeno na uzorku od 673 ispitanika. Nalazi ove studije ukazuju na važnost socio – demografskih varijabli za ispitivanje lokalne gastronomije kao značajne komponente turističkog proizvoda. Ispitivanje je uključilo i utvrđivanje uticaja grada u kojem su turisti boravili. Razlike su ispitane dvofaktorskom analizom varijanse. Dobijeni rezultati pokazuju da postoje razlike između starosnih grupa, nivoa obrazovanja, mesečnih prihoda i država iz kojih dolaze strani turisti, dok ne postoji razlika između polova u odnosu na percepciju lokalne gastronomije. Istovremeno, nalazi ukazuju da ne postoje razlike u percepciji lokalne gastronomije između gradova Novog Sada i Beograd. Rezultati potvrđuju ranije studije i ukazuju na značaj socio – demografskih karakteristika stranih turista u percepciji lokalne gastronomije, te i prilagođavanje iste posetiocima, bez obzira na grad koji su posetili.

Ključne reči: *socio - demografske karakteristike, turistu, lokalne gastronomije, Republika Srbija*

-
- 8 Ovaj rad je deo projekata III-46009 i III-46005 koje finansira Ministarstvo prosvete, nauke i tehnološkog razvoja Republike Srbije.
 - 9 Nikola Vuksanović, M.Sc, asistent, Visoka škola strukovnih studija za menadžment i poslovne komunikacije, Mitropolita Stratimirovića 110, 21205 Sremski Karlovci, Srbija, Telefon: +381 63 19 68 770, E-mail: vuksanovicnikola@yahoo.com
 - 10 Redovni profesor, dr Dragan Tešanović, Prirodno-matematički fakultet, Departman za geografiju, turizam i hotelijerstvo, Trg Dositeja Obradovića br. 3, 21000 Novi Sad, Srbija, Telefon: +381 63 541 436, E-mail: tesanovic.dragan@gmail.com
 - 11 Docent, dr Bojana Kalenjuk, Prirodno-matematički fakultet, Departman za geografiju, turizam i hotelijerstvo, Trg Dositeja Obradovića br. 3, 21000 Novi Sad, Srbija, Telefon: +381 64 199 02 35, E-mail: bojanakalenjuk@yahoo.com
 - 12 Vanredni profesor, dr Milijanko Portić, Prirodno-matematički fakultet, Departman za geografiju, turizam i hotelijerstvo, Trg Dositeja Obradovića br. 3, 21000 Novi Sad, Srbija, Telefon: +381 63 814 47 39, E-mail: porticprof@yahoo.com
 - 13 Vanredni profesor, dr Marija Knežević, Fakulteta za turizam i hotelijerstvo, 78000 Banja Luka, Republika Srpska, Ulica Jovana Dučića br. 23a, Telefon: +387 65 512 894, E-mail: marija.knezevic@hotmail.com

Respected reviewers,

I would like to thank you on selfless contribution you gave in the process of quality improvement of the papers published in the journal Economics of Agriculture during 2016.

Editor - in - Chief
Prof. Drago Cvijanović, Ph.D.

LIST OF REVIEWERS IN 2016

1. Adrian Stancu, Ph.D., Petroleum and Gas University, Economic Sciences Faculty, Ploiesti, Romania,
2. Alexandr Trukhachev, Ph.D., Stavropol State Agrarian University, Russian Federation,
3. Anna Ivolga, Ph.D., Stavropol State Agrarian University, Stavropol, Russian Federation,
4. Anton Puskaric, Ph.D., Institute of Agricultural Economics, Belgrade, Serbia
5. Corina Ene, Ph.D., Petroleum and Gas University, Economic Sciences Faculty, Ploiesti, Romania,
6. Crina Turtoi, Ph.D., Romanian Academy of Science, Institute of Agricultural Economics,
7. Dan Marius Voicilas, Ph.D., Romanian Academy of Science, Institute of Agricultural Economics, Bucharest, Romania,
8. Danica Micanovic, Ph.D., Serbian Chamber of Commerce,, Belgrade, Serbia
9. Dario Simicevic, Ph.D., College of Tourism, Belgrade, Serbia,
10. Doc. Aleksandra Mitrovic, Ph.D., Faculty of Hotel Management and Tourism, Vrnjačka Banja, Serbia
11. Doc. Boris Kuzman, Ph.D., Institute of Agricultural Economics, Belgrade, Serbia
12. Doc. Branko Mihailovic, Ph.D., Institute of Agricultural Economics, Belgrade, Serbia,
13. Doc. Gordana Radovic Ph.D. Faculty of Economics and Engineering Management University Business Academy in Novi Sad, Serbia.
14. Doc. Marija Kostic, Ph.D., Faculty of Hotel Management and Tourism, Vrnjačka Banja, Serbia
15. Doc. Marija Mandaric, Ph.D., Faculty of Hotel Management and Tourism, Vrnjačka Banja, Serbia
16. Doc. Natasa Kljajic, Ph.D., Institute of Agricultural Economics, Belgrade, Serbia

17. Doc. Snezana Milicevic, Ph.D., Faculty of Hotel Management and Tourism, Vrnjačka Banja, Serbia
18. Doc. Tanja Stanisic, Ph.D., Faculty of Hotel Management and Tourism, Vrnjačka Banja, Serbia
19. Doc. Zeljko Vojinovic, Ph.D., Faculty of Economics, Subotica, Serbia
20. István Kapronczai, Ph.D. Research Institute of Agricultural Economics, Budapest, Hungary,
21. Marek Wigier, Ph.D., Institute of Agricultural and Food Economics, Warsaw, Poland,
22. Milos Jovanovic, Ph.D., Science Associate, Mihajlo Pupin Institute, Belgrade, Serbia
23. Prof. Adrian Turek Rahoveanu, Ph.D., University of Agricultural Sciences and Veterinary Medicine of Bucharest, Romania,
24. Prof. Aleksandar Rodic, Ph.D., Mihajlo Pupin Institute, Belgrade, Serbia
25. Prof. Aleksandra Despotovic, Ph.D., Biotechnical Faculty, Podgorica, Montenegro,
26. Prof. Alexandru Stratan, Ph.D., Institute of Economy, Finance and Statistics, Chisinau, Moldova,
27. Prof. Ana Langović Miličević, Ph.D., Faculty of Hotel Management and Tourism, Vrnjačka Banja, Serbia
28. Prof. Anatoli Saiganov Semenovich, Ph.D., Institute of System Research in the Agro-industrial Complex of National Academy of Sciences of Belarus, Minsk, Republic of Belarus,
29. Prof. Andreja Borec, Ph.D., University of Maribor, Faculty of Agriculture and Life Sciences, Hoce, Slovenia,
30. Prof. Anka Vranjes Popovic, Ph.D., Faculty of Agriculture, Novi Sad, Serbia
31. Prof. Aurelia Felicia Stancioiu, Ph.D., Academy of Economic Sciences, Bucharest, Romania,
32. Prof. Bahrija Umihanic, Ph.D., Faculty of Economy, Tuzla, Bosnia and Herzegovina,
33. Prof. Beba Mutavdzic, Ph.D., Faculty of Agriculture, Novi Sad, Serbia
34. Prof. Biljana Jovanovic Gavrilovic, Ph.D., Faculty of Economics, Belgrade, Serbia
35. Prof. Blagica Sekovska, Ph.D., Faculty of Veterinary Medicine, Skopje, Republic of Macedonia,
36. Prof. Blagoje Paunović, Ph.D., Faculty of Economics, Belgrade, Serbia
37. Prof. Bojan Savic, Ph.D., Faculty of Agriculture, Belgrade, Serbia

38. Prof. Bozidar Veljkovic, Ph.D., Faculty of Tourism, Brežice, Slovenia
39. Prof. Branislav Zlatkovic, Ph.D., Faculty of Agriculture, Belgrade, Serbia
40. Prof. Branka Kalanovic, Ph.D., Faculty of Agriculture, Belgrade, Serbia
41. Prof. Camelia Gavrilesco, Ph.D., Institute of Agricultural Economics, Bucharest, Romania
42. Prof. Christina Yancheva, Ph.D., Agricultural University, Plovdiv, Bulgaria,
43. Prof. Claudiu Cicea, Ph.D., Academy of Economic Studies, Bucharest, Romania,
44. Prof. Constantinos Alexiou, Ph.D., Polytechnic School, Aristotle University, Thessaloniki, Greece,
45. Prof. Cvijan Mekic, Ph.D., Faculty of Agriculture, Belgrade, Serbia,
46. Prof. Dan Boboc, Ph.D., Academy of Economic Studies, Bucharest, Romania,
47. Prof. Danko Milasinovic, Ph.D., Faculty of Hotel Management and Tourism, Vrnjačka Banja, Serbia
48. Prof. Darina Zaimova, Ph.D., Trakia University, Stara Zagora, Bulgaria,
49. Prof. Dimitre Nikolov, Ph.D., Institute of Agricultural Economics, Sofia, Bulgaria,
50. Prof. Donatella Privitera, Ph.D., Department of Educational Sciences, University of Catania, Catania, Italy,
51. Prof. Dragana Gnjatovic, Ph.D. Faculty of Hotel Management and Tourism, Vrnjci Spa, Serbia,
52. Prof. Dragomir Djordjevic, Ph.D., Faculty of Economics and Engineering Management, Novi Sad, Serbia
53. Prof. Dusan Milic, Ph.D., Faculty of Agriculture, Novi Sad, Serbia
54. Prof. Dusko Jovanovic, Ph.D., Business Economics Academy, Cacak, Serbia,
55. Prof. Elena Stoian, Ph.D., University of Agricultural Sciences and Veterinary Medicine,
56. Prof. Gabriel Popescu, Ph.D., Academy of Economic Studies, Bucharest, Romania,
57. Prof. Goran Maksimovic, Ph.D., Faculty of Agriculture Lesak, Serbia
58. Prof. Gordana Dozet, Ph.D., Faculty of Biofarming, Belgrade, Serbia
59. Prof. Gordana Vukelic, Ph.D., Belgrade Business Academy, Belgrade, Serbia
60. Prof. Gorica Cvijanovic, Ph.D., Faculty of Biofarming, Belgrade, Serbia
61. Prof. Hasan Hanic, Ph.D., Belgrade Business Academy, Belgrade, Serbia
62. Prof. Ivan Milojević, Ph.D., University of defense in Belgrade, Military Academy, Belgrade, Serbia,

63. Prof. Ivana Plazibat, Ph.D., Assistant Professor, University of Split, Department for Professional
64. Prof. Ivo Grgic, Ph.D., Faculty of Economy, Zagreb, Croatia,
65. Prof. Janko Veselinovic, Ph.D., Faculty of Agriculture, Novi Sad, Serbia
66. Prof. Jelena Birovljev, Ph.D., Faculty of Economics, Subotica, Serbia
67. Prof. Jelena Radovic-Stojanovic, Ph.D., Faculty of Hotel Management and Tourism, Vrnjačka Banja, Serbia
68. Prof. Jonel Subic, Ph.D., Institute of Agricultural Economics, Belgrade, Serbia
69. Prof. Jovan Zubovic, Ph.D., Institute of Economic Sciences, Belgrade, Serbia,
70. Prof. Katarina Djuric, Ph.D., Faculty of Agriculture, Novi Sad, Serbia
71. Prof. Koviljko Lovre, Ph.D., Faculty of Economy, Subotica, Serbia,
72. Prof. Krunoslav Zmaic, Ph.D., Faculty of Agriculture, Osijek, Croatia
73. Prof. Marco Platania, Ph.D., Department of Formational Sciences, University of Catania, Catania, Italy,
74. Prof. Marko Ivankovic, Ph.D., Federal Agro-Mediterranean Institute, Mostar, Bosnia and Herzegovina,
75. Prof. Matteo Vittuari, Ph.D., Faculty of Agriculture, Bologna, Italy,
76. Prof. Mihael Toman, Ph.D., Biotechnical faculty, University of Ljubljana, Domzale, Slovenia,
77. Prof. Mihai Mieila, Ph.D., Faculty of Economic Sciences, Valahia University, Targoviste, Romania,
78. Prof. Milan Pocuca, Ph.D., Business Academy, Faculty of Law, Novi Sad, Serbia,
79. Prof. Mile Pesevski, Ph.D., University "Ss Cyril and Methodius", Faculty of Agricultural Sciences and Food, Institute of Agroecconomics, Skopje, Republic of Macedonia,
80. Prof. Milorad Filipovic, Ph.D., Faculty of Economics, Belgrade, Serbia
81. Prof. Mirjana Vasic, Ph.D., Institute of Field and Vegetable Crops, Novi Sad, Serbia
82. Prof. Miroljub Hadzic, Ph.D., Singidunum University, Belgrade, Serbia
83. Prof. Miroslav Cavlin, Ph.D., Faculty of Economics and Engineering Management University Business Academy in Novi Sad, Serbia.
84. Prof. Nada Lakic, Ph.D., Faculty of Agriculture, Belgrade, Serbia
85. Prof. Natalia Sergeevna Morozyuk, Ph.D., Odessa State Agrarian University, Odessa, Ukraine,

86. Prof. Natalya Bannikova Vladimirovna, Ph.D., Stavropol State Agrarian University, Russian Federation,
87. Prof. Natalija Bogdanov, Ph.D., Faculty of Agriculture, Belgrade, Serbia,
88. Prof. Nebojsa Novkovic, Ph.D., Faculty of Agriculture, Novi Sad, Serbia
89. Prof. Nebojsa Zarkovic, Ph.D., John Naisbitt University, Belgrade, Serbia
90. Prof. Nicholas Apergis, Ph.D., University of Piraeus, Piraeus, Greece,
91. Prof. Rajko Tepavac, Ph.D. Faculty of Economics and Engineering Management University Business Academy in Novi Sad, Serbia.
92. Prof. Raluca Ion, Ph.D., Academy of Economic Studies, Bucharest, Romania,
93. Prof. Ruzica Stricevic, Ph.D., Faculty of Agriculture, Belgrade, Serbia
94. Prof. Sait Engindeniz, Ph.D., Ege University, Faculty of Agriculture, Department of Agricultural Economics, Izmir, Turkey,
95. Prof. Sanjin Ivanovic, Ph.D., Faculty of Agriculture, Belgrade, Serbia,
96. Prof. Savo Vuckovic, Ph.D., Faculty of Agriculture, Belgrade, Serbia
97. Prof. Sladjana Savic, Ph.D., Faculty of Biofarming, Belgrade, Serbia
98. Prof. Snezana Stetic, Ph.D., The College of Tourism, Belgrade, Serbia,
99. Prof. Sonja Jovanovic, Ph.D., Faculty of Economics, Nis, Serbia
100. Prof. Sretenka Srdic, Ph.D., Faculty of Agriculture, Banja Luka, Republic of Srpska
101. Prof. Stanislav Zekic, Ph.D., Faculty of Economics, Subotica, Serbia
102. Prof. Suzana Djordjevic-Milosevic, Ph.D., Singidunum University, Belgrade, Serbia
103. Prof. Svetlana Vukotic, Ph.D., Union - Nikola Tesla University, Belgrade, Serbia
104. Prof. Tatjana Cvetkovski, Ph.D., The Graduate School of Business Studies, Belgrade, Serbia
105. Prof. Tatjana Jovanic, Ph.D., Faculty of Law, Belgrade, Serbia
106. Prof. Tatjana Papic Brankov, Ph.D., Faculty of Economics, Subotica, Serbia
107. Prof. Tetyana Mostenska, Ph.D., National University of Food Technologies, Kyiv, Ukraine,
108. Prof. Todor Markovic, Ph.D., Faculty of Agriculture, Novi Sad, Serbia
109. Prof. Vesna Rodic, Ph.D., Faculty of Agriculture, Novi Sad, Serbia,
110. Prof. Victor Manole, Ph.D., Academy of Economic Studies, Bucharest, Romania,
111. Prof. Vidoje Stefanovic, Ph.D., Faculty of Sciences, Niš, Serbia
112. Prof. Vihren Bouzov, Ph.D., University of Veliko Tarnovo, Bulgaria

113. Prof. Vladan Pavlović, Ph.D., Faculty of Economics, Priština, Serbia
114. Prof. Vladan Ugrenovic, Ph.D., Institut "Tamiš" Pančevo, Serbia
115. Prof. Vlade Zarić, Ph.D., Faculty of Agriculture, Belgrade, Serbia,
116. Prof. Vladimir Zakic, Ph.D., Faculty of Agriculture, Belgrade, Serbia,
117. Prof. Vladislav Zekic, Ph.D., Faculty of Agriculture, Novi Sad, Serbia,
118. Prof. Zaklina Stojanovic, Ph.D., Faculty of Economics, Belgrade, Serbia,
119. Prof. Zdravko Petrovic, Ph.D., University of Sigmund Freud, Wien, Austria
120. Prof. Zeljko Dolijanovic, Ph.D., Faculty of Agriculture, Belgrade, Serbia
121. Prof. Zeljko Vasko, Ph.D., Faculty of Agriculture, Banja Luka, Republic of Srpska
122. Prof. Zoran Brocic, Ph.D., Faculty of Agriculture, Belgrade, Serbia
123. Prof. Zoran Grgic, Ph.D., Faculty of Agriculture, Zagreb, Croatia,
124. Prof. Zorica Sredojevic, Ph.D., Faculty of Agriculture, Belgrade, Serbia,
125. Prof. Zorica Vasiljevic, Ph.D., Faculty of Agriculture, Belgrade, Serbia,
126. Svetlana Roljevic, Ph.D., Institute of Agricultural Economics, Belgrade, Serbia.
127. Svetlana Turudija Zivanovic, Ph.D., Institute for Medicinal Plant Research "Dr Josif Pancic", Belgrade, Serbia
128. Vasily Erokhin, Ph.D., Stavropol State Agrarian University, Stavropol, Russian Federation,
129. Vesna Milicic, Ph.D., University of Ljubljana, Biotechnical Faculty, Ljubljana, Slovenia,
130. Vesna Parausic, Ph.D., Institute of Agricultural Economics, Belgrade, Serbia
131. Vlado Kovacevic, Ph.D., Ministry of Agriculture, Belgrade, Serbia,
132. Zbigniew Florianczyk, Ph.D., Institute of Agricultural and Food Economics, Warsaw, Poland,
133. Zoran Simonovic, Ph.D., Institute of Agricultural Economics, Belgrade, Serbia.

ЗАПИСНИК

са IX (девете) редовне годишње седнице Скупштине НАУЧНОГ ДРУШТВА АГРАРНИХ ЕКОНОМИСТА БАЛКАНА (НДАЕБ)

одржане 21.03.2017. године

У Привредној комори Београд, улица Кнеза Милоша 12, у сали Мезанин на
међуспрату од 13h до 14h

Седницу Скупштине Научног друштва аграрних економиста Балкана је отворио председник НДАЕБ-а, проф. др Радован Пејановић, који је предложио следећи дневни ред:

1. Избор радних тела Скупштине
2. Извештај о раду НДАЕБ за 2016. годину
3. Разматрање и усвајање финансијског извештаја за 2016. годину
4. План активности НДАЕБ за 2017. годину
5. Разно

АД-1.

1. Избор радних тела Скупштине

1.1. За члана радног председништва Скупштине НДАЕБ-а, предложен је:

- проф. др Драго Цвијановић

1.2. За записничара Скупштине НДАЕБ-а, предложена је:

- др Јелена Премовић

1.3. За овериваче записника Скупштине НДАЕБ-а, предложени су:

- проф. др Зорица Васиљевић и
- проф. др Јонел Субић

Сви предлози су једногласно прихваћени.

АД-2.

2. Извештај о раду НДАЕБ-а за 2016. годину

Извештај о раду НДАЕБ-а за 2016. годину је поднео председник Научног друштва проф. др Радован Пејановић.

На самом почетку представљања Извештаја о раду за 2016. годину, професор Пејановић је говорио о часопису *Економика пољопривреде*, који издаје НДАЕБ. Истичући значај часописа *Економика пољопривреде* у развоју агроекономске мисли,

обавестио је чланове Скупштине да су у 2016. години, и поред бројних потешкоћа, имајући у виду друштвено-економску ситуацију, објављени сви планирани бројеви часописа, свих четири броја (квартално издање) са укупно 92 рада, од чега 83 домаћих и 9 страних аутора. Сви радови су објављени на енглеском језику. Посебно је нагласио да су, захваљујући радовима које су објавили у часопису, млади научни истраживачи добили звања, и добијају звања што „говори не само о квантитету већ и о квалитету часописа, што је јако важно јер су у издавачкој делатности велики проблеми, многи часописи касне, заостају, имају проблема са квалитетом радова, и збиља можемо и требамо да се похвалимо и да се поносимо да смо потпуно солвентни, да издајемо на време, да смо врло ефикасни, а то све не иде лако и не пада са неба“. То је плод једног великог рада, ентузијазма и друго, то носи велику одговорност за све нас. Не дај Боже да се деси нека афера, а врло лако може. Знате како, долазе свакакви радови, то је присутно у јавности како у националној тако и међународној. Због тога је наша одговорност велика... Ниједан испад ни инцидент ни проблем нисмо имали“, истакао је професор Пејановић. Посебну захвалност је упутио суиздавачима часописа. Пре свега, „ту су наши сјајни чланови из Института за економику пољопривреде. Једна збиља изузетна институција, изузетан институт, тим ентузијаста, изузетан тим младих и веома талентованих научних радника-агроекономиста, који несегично помажу и учествују у издавању овог часописа. И то је један посебан квалитет с обзиром на структуру и број запослених и активност овог Института. Али ту су и друге институције које колико-толико помажу, ако не институционално, оно појединачно преко чланова: Пољопривредни факултет у Новом Саду, Пољопривредни факултет у Земуну и научне институције, научни институти и други које се активно укључују у то.“ Такође, напоменуо је председник да се све више аутора са приватних универзитета интересују, контактирају и желе да објаве своје радове у часопису, а ми као научно друштво се трудимо да не правимо никакве дискриминације и да не елиминишемо ни њих, чак напротив, позивамо и приватне факултете и од њих добијамо такође веома квалитетне и ауторе и радове.

Поред издавања часописа Економика пољопривреде, председник је као посебно важну активност НДАЕБ-а током 2016. године, истакао и учествовање у сурорганизацији три међународне конференције. То су:

- Међународна научна конференција: „ТУРИЗАМ У ФУНКЦИЈИ РАЗВОЈА РЕПУБЛИКЕ СРБИЈЕ“ - бањски туризам у Србији и искуства других земаља“, који је одржан у Врњачкој Бањи од 02. до 04. јуна 2016. године;
- VII Међународни Научни Пољопривредни Симпозијум „AGROSYM 2016“ који је одржан на Јахорини од 06. до 09. октобра 2016. године;
- Међународни научни скуп: „ОДРЖИВА ПОЉОПРИВРЕДА И РУРАЛНИ РАЗВОЈ У ФУНКЦИЈИ ОСТВАРИВАЊА СТРАТЕШКИХ ЦИЉЕВА РЕПУБЛИКЕ СРБИЈЕ У ОКВИРУ ДУНАВСКОГ РЕГИОНА - развој и примена чистих технологија у пољопривреди“, који је одржан у Београду у Привредној комори Београд од 15. до 16. децембра 2016. године.

Говорећи о првој конференцији, професор Пејановић је изразио задовољство што је НДАЕБ учествовао као суорганизатор конференције у Врњачкој Бањи коју организује Факултет за хотелијерство и туризам из Врњачке Бање. Такође, информисао је чланове Скупштине да је као председник Комисије за оцену најбољих организација из области образовања имао задовољство да Факултету за хотелијерство и туризам из Врњачке Бање додели награду- медаљу за организацију и квалитет на Међународном сајму образовања на коме је био и министар просвете са својим државним секретарима. Министар је лично уручио награду декану факултета професору Цвијановићу. „Факултет за хотелијерство и туризам из Врњачке Бање крупним корацима осваја наше образовно-научно тржиште што је за велику похвалу, захваљујући нашем члану научног друштва и главном и одговорном уреднику часописа *Економика пољопривреде* професору др Драги Цвијановићу. Статус суорганизатора ове конференције и одличан зборник са ове конференције је такође наша значајна референца“, истакао је председник научног друштва.

Указујући на учешће НДАЕБ-а као суорганизатора на 7. Међународном Научном Симпозијуму „AGROSYM 2016“ који је одржан на Јахорини, нагласио је одличну сарадњу са Пољопривредним факултетом из Источног Сарајева коју воде ентузијастички колеге из Републике Српске и такође сјајни агроекономисти са којима научно друштво има одличну сарадњу. Посебно је нагласио одличну сарадњу са секретаром симпозијума др Сенишом Берјаном и изразио задовољство што је овај симпозијум по обиму један од највећих скупова у региону, што је још једна значајна референца научног друштва.

Говорећи о Међународном научном скупу: „Одржива пољопривреда и рурални развој у функцији остваривања стратешких циљева Републике Србије у оквиру Дунавског региона - развој и примена чистих технологија у пољопривреди“, коју НДАЕБ организује са Институтом за економику пољопривреде, Председник Друштва је подсетио чланове Скупштине да је то „наш пројекат који смо промовисали и који је био такође веома успешан и добар, где се научно друштво појавило као суорганизатор“.

Поред издавања часописа *Економика пољопривреде* и учествовања у суорганизацији међународних конференција, председник НДАЕБ-а је апострофирао као трећу најважнију активност Друштва у 2016. години и издавање монографије: „Мogućности запошљавања младих“, чији суредатори проф. др Радован Пејановић и доц. др Мирјана Крањак. Издавач је НДАЕБ и Покрајински секретаријат за привреду и туризам Владе АП Војводине. „То је једна сјајна монографија која је јако добро прошла и коју смо штампали у 300 примерака; презентовали смо је на више места и одлично је прихваћена, где је научно друштво узело учешћа и где се управо промовише и рад нашег друштва“.

Професор Пејановић је истакао ове три групе кључних активности које је научно друштво радило у 2016. години. „Сматрамо да је то нешто што је добро с обзиром и на друштвену ситуацију. Нисмо се много петљали ни око политичких питања нити смо у јавност износили по сваку цену. Сматрамо да је то доста обојено партијски. Ми се трудимо да научно друштво издвојимо из тих партијских подела, лобирања итд. Мислим да на овај начин показујемо и наш квалитет, наш рад... По мом мишљењу, ми треба да задржимо интелектуалну неутралност, аутономију и независност и слободу, јесте да то кошта, чућете и финансијски извештај да ми нисмо богаташи као многе агенције које се формирају ad hoc и које располажу са огромним средствима, али то је цена“, закључио је на крају подношења Извештаја о раду НДАЕБ-а за 2016. годину.

Након презентовања Извештаја о раду за 2016. годину, отворена је дискусија.

За реч се јавила др Гордана Радовић која је похвалила укупно више од 100 радова који су изашли само у 2016. години у *Економици пољопривреде*, од којих сваки има око 15 страна, и подсетила да то колико је проблематично изфинансирати и одшампати сваки број часописа и то све у року. *Економика пољопривреде* излази увек квартално на време, што није случај са другим часописима. Захваљујући председнику научног друштва и главном и одговорном уреднику часописа на оствареним резултатима у претходној години, др Радовић је изразила жељу и потребу да чланови НДАЕБ-а у складу са својим могућностима, што више учествују на научним скуповима и конференцијама, нарочито на скуповима које организује научно друштво, како би се на тај начин потрудили да опстану и преживе и скупови и наше научно друштво, у овим тешким временима.

Пошто није било више пријављених за дискусију, приступило се гласању. Извештај о раду НДАЕБ-а за 2016. годину је једногласно усвојен.

Ad-3.

3. Разматрање и усвајање финансијског извештаја за 2016. годину

Финансијски извештај НДАЕБ-а за 2016. годину је поднео проф. др Драго Цвијановић.

Износећи финансијски извештај за 2016. годину, професор Цвијановић је истакао проблем око плаћања чланарина за 2016 и 2017. годину и захвалио свим појединцима члановима НДАЕБ-а који су уплатили чланарину. Посебно се захвалио директору Института др Јонелу Субићу и његовом помоћнику др Борису Кузману испред ИЕП-а и Пољопривредном факултету у Новом Саду и професору др Владиславу Зекићу што су изашли у сусрет апелу и уплатили

колективне чланарине и на тај начин омогућили плаћање ЦЕОНУ 150.000 динара за 2017. годину и несметано излагање часописа Економика пољопривреде у 2017. години. „Сада имамо приступ на антиплагијат програму у ЦЕОН-у и сви радови ће у 2017. години, што је новина, од првог броја у 2017. години, проћи кроз антиплагијат програм и ту неће бити изненађења“. Указао је на притисак од колега који имају изборе у звања да им се објављују радови као и на чињеницу „многим колегама смо спасили изборе у звања захваљујући објављивању радова у *Економици пољопривреде*. Само на ПМФ-у чак пет избора. То је велика ствар“, истакао је професор Цвијановић и обавестио присутне чланове да је први број часописа *Економика пољопривреде* за 2017. годину у штампи и да треба да изађе у планираном року до краја месеца.

Што се тиче трошкова и структуре трошкова, ситуација је следећа: „Научно друштво је оприходовало 1.554.841,46 динара. Нажалост, 1.551.787,17 динара је потрошено за штампање, за техничко уређење часописа, за лекторисање, књиговодствене услуге 87.000,00, за ПТТ трошкове 100.000 иако нам је ИЕП послао задња 2 броја око 30% часописа мимо овог трошка. Проблем је скупо је слање у иностранство, око 8.000 динара кошта само једно слање у иностранство. У структури трошкова канцеларијски материјал и стручна литература, односно, ЦЕОН је коштао 60.000 прошле године, техничко уређење часописа, лектура, коректура, припрема за штампу и др. у износу од 550.000 динара, путни трошкови 86.000 без Института, трошкови штампе 751.000, књиговодствене услуге 87.000, провизија банке 7.000 и остали трошкови 5.400 динара... Позитивно смо пословали, не дугујемо никоме ништа, и наглашавам, захваљујући колеги Субићу и колеги Зекићу, успели смо да скупимо прву и најкритичнију рату за први квартал, платили смо 150.000 динара за ЦЕОН... Сад имамо приступ и сваки наш рад када прође позитивну рецензију, аутори се шаљу без имена и презимена на антиплагијат у ЦЕОН. То је новина од овог броја, а вероватно ћемо од другог броја моћи да уђемо у шифарник... На овај начин ћемо направити један искорак и добићемо још већи квалитет када је часопис *Економика пољопривреде* у питању“, обавестио је чланове Скупштине главни и одговорни уредник часописа професор Цвијановић.

Такође, истакао је да имамо мали број радова из иностранства што је велика замерка због чега је апеловао на чланове Друштва да контактирају своје познанике и пријатеље из окружења, из ек Југославије и шире да пријављују своје радове. Договор је да не може да се објаве у једном броју *Економике пољопривреде* два и више рада од истог аутора, већ највише у једном броју може да се објави један рад од једног аутора.

На крају подношења финансијског извештаја за 2016. годину, професор Цвијановић је изразио жељу и потребу да се чланови друштва што више пријављују са радовима на међународним конференцијма и скуповима како би и на тај начин промовисали наше научно друштво и часопис.

Пошто није било пријављених за дискусију, приступило се гласању на коме је Финансијски извештај НДАЕБ-а за 2016. годину једногласно усвојен.

Ad-4.

4. План активности НДАЕБ за 2017. годину

План активности за 2017. годину је представио Председник друштва проф. др Радован Пејановић. Као кључне активности које научно друштво планира да реализује током 2017. године, апострофирао је следеће:

- Наставити рад на квалитету и позиционирању часописа „Економика пољопривреде“.
- Издавање четири редовна броја и евентуално неки ванредни број часописа „Економика пољопривреде“ (на енглеском језику).
- Организовање научних и стручних скупова (као организатори и суорганизатори).
- Издавање одговарајућих монографија.
- Сарадња са другим организаторима и институцијама.
- Јачање научног и стручног утицаја НДАЕБ као и часописа.

Састанци председништва НДАЕБ одржаваће се по потреби, у складу са финансијским могућностима, док ће за хитне одлуке важити могућност доношења одлука телефонским путем.

Наводећи активности које су планиране у 2017. години, наглашена је активност око издавања одговарајућих монографија. Позивајући све чланове да пишу и објављују своје монографије преко научног друштва, професор Пејановић је посебно указао да би било добро и докторске дисертације млади људи да издају код научног друштва, будући да је то најбољи и најкомпетентнији и најјефтинији начин издавања.

План рада за 2017. годину је стављен на разматрање, отворена је дискусија.

За реч се јавио професор Драго Цвијановић који је подсетио да је у Србији извршена промена система рада комора. Посебно се захвалио пријатељу и сараднику и Развојне академије и Научног друштва и домаћину који је отворио врата Привредне коморе у Београду, др Крстићу. Предложио је да би било добро да Научно друштво, Институт и Комора помогну заједно да се млади научни кадрови афирмишу и промовишу. Поновио је проблем око неплаћања чланарине појединих чланова, али и институција и захвалио поново свима који су то учинили на време и тако омогућили да се уплати 150.000 динара за ЦЕОН и антиплагијат програм за 2017. годину.

Захваљујући се на речима захвалности, др Крстићу је у име Привредне коморе Београда изразио задовољство досадашњом сарадњом са Друштвом и Институтом и жељу да ће се та сарадња наставити и у будућности. Упознао

је чланове Скупштине да „иако су се околности мало промениле у смислу финансијске независности, што се тиче добре воље ништа се није променило. Ови ресурси које имамо су на располагању и трудићемо се да будемо од користи“. Обавестио је да се на нивоу Привредне коморе Београда, а за коморски систем Србије спроводе активности у унапређењу сарадње науке и привреде и да ПКБ спрема један скуп 28. марта где би се у начелу позабавили неким моделима сарадње. Позвао је Научно друштво и ИЕП да се заједно са ПКБ укључе у организацију једног „скупа крајем априла који би био посвећен сарадњи науке и привреде у области пољопривреде пре свега и да ту отворимо неке могућности да позовемо специјализоване институте, факултете, нечије страно искуство уколико је могуће представимо и то би било у склопу ове наше афирмације. План нам је да као резултат тога изађе један Савет за сарадњу науке и привреде који би био у склопу ПКС, али са седиштем у ПКБ што би вероватно олакшало будуће облике сарадње“, закључио је др Крстић.

Поздрављајући ову одличну идеју и сарадњу са ПКБ, професор Пејановић је рекао да је управо као плод те успешне сарадње Научног друштва и ПКБ, био иницијатор да ПКБ добије награду – повељу капетан Миша Анастасијевић. Упознао је чланове Скупштине о иницијативи председника општине Зрењанин да се научно друштво укључи у организацију симпозијума, научно-стручног скупа на тему: Пиво, пиварство и хмелјарство, што је председништво Друштва прихватило. „То је једна идеја у повоју и научно друштво ће демонстрирати могућности сарадње са локалним заједницама. Имамо и одличну сарадњу са листом Пољопривредник. Ту је Гордана Радовић која нас промовише и представља у том реномираном часопису који има традицију 60 година и Пољопривредни Календар где се наши чланови научног друштва појављују са својим радовима. То је једна сјајна публикација која је уврштена као обавезна литература у средњим школама. И на тај начин се инфилтрирамо и активни смо и трудимо се да се представимо“, истакао је професор Пејановић.

За реч се затим јавила проф. др Зорица Васиљевић која је, подсећајући да смо ми Научно друштво аграрних економиста Балкана, питала о сарадњи са осталим балканским земљама. Подсетила је чланове Скупштине да као научно друштво имамо активности на скупу у Републици Српској, један скуп је у октобру у Македонији и поставила питање колико су активне друге земље Балкана у научном друштву.

С тим у вези за реч се јавио др Јонел Субић који је обавестио присутне да је био са професором Цвијановићем прошле године на једном симпозијуму у Букурешту код сарадника и пријатеља научног друштва и Института „где је договорена једна активност за коју се надам да ће ускоро да заживи, а то је да се у свим земљама које делегирају чланство у Друштву отворимо по једну канцеларију, да у пријатељским институцијама заједно са њима договоримо ко ће бити представник Научног друштва аграрних економиста Балкана и да он тамо

буде нека врста истуреног одељења –тзв. „официра за везу“. Већ смо започели једну овакву дискусију и добили смо чврсто обећање да ће ускоро заживети једна оваква канцеларија у Букурешту у оквиру њиховог Универзитета економских наука“. Директор Субић је изразио наду да ће се ова активност реализовати када буду дошли њихови представници Универзитета на симпозијум у Врњачкој Бањи у јуну месецу, и да до краја године то буде први искорак у сарадњи са осталим земљама које су делегирале своје чланство у нашу организацију. Подсетио је чланове Скупштине да је ИЕП један од иницијатора идеје да се помогне приликом избора у више звање члановима ИЕПа и научног друштва, али само оном чланству које је активно и које завређује да му се помогне. Наравно, да то буду квалитетни радови и никако у једном броју да не буду два рада од истих аутора.

Такође, подсетио је и да је ИЕП покренуо једну традиционалну активност која је започета још док је директор Института био Драго Цвијановић, а то је да Комора буде домаћин међународног скупа који организује Институт у сарадњи са научним друштвом. Прошле године трећи пут за редом први дан скупа је отворен у просторијама Коморе и директор Субић је изразио жељу и очекивање да ће и ове године, када се очекује финализација програмског циклуса, такође скуп бити отворен у просторијама ПКБ. Сложио се са иницијативом др Крстића да крајем априла ИЕП заједно са Комором и Научним друштвом учествује у организацији научног скупа о унапређењу сарадње науке и привреде. На крају, захваљујући се Научном друштву на досадашњој сарадњи, изразио је наду да ће се ова сарадња само учврстити и наставити.

Поздрављајући ову иницијативу и добре идеје, професор Пејановић је посебно апострофирао значај отварања пунктова у многим земљама окружења –бивше екс Југославије, али и шире. Ту је Румунија, Македонија, Црна Гора, БиХ, итд. То је дакле једна јако добра идеја и покушаћемо да је реализујемо у наредном периоду, истакао је председник Научног друштва.

За реч се јавио професор Драго Цвијановић. Прихватајући сугестије и питање професорице Зорице Васиљевић око сарадње са осталим балканским земљама и идеје директора др Јонела Субића, предложио је да чланови Скупштине донесу „одговарајуће одлуке да где год имамо услова и заинтересованости, било да је то Бугарска, Румунија, Македонија, Црна Гора, Република Српска, Хрватска – где имамо чланове направимо одељења и тако заокружимо ову причу, јер је потребно статутом дефинисати ове измене и измене пријавити у АПР“.

Имајући у виду да отварање истурених одељења у другим земљама изискује и одређена финансијска средства и посебно формално-правно регулисање, на шта је упозорио председник Научног друштва професор Пејановић, чланови Скупштине су се сагласили да се о овом питању детаљније разговара на неком од наредних састанака.

За реч се потом поново јавио директор Јонел Субић који је упознао присутне да је прошле године заједно са својим замеником, др Борисом Кузманом први пут ишао на интеркатедарске сусрете у Осијеку и да ће ове године интеркатедарски сусрети бити на Пољопривредном факултету у Земуну, на које их је лично позвала колегиница др Зорица Васиљевић. Износећи своје позитивно искуство са ових сусрета у Осијеку, изнео је и предлог члановима Скупштине „да можда сви заједно размислимо да, поред тих канцеларија, иако није једноставно и финансијски лако, у неком наредном периоду покушамо да пропратимо заједничке активности да се мало и дружимо, да Скупштина друштва има седиште овде у Београду, али да можда у неком наредном периоду ми пробамо да организујемо да се мало дружимо и да учествујемо на скуповима у Бугарској и Македонији и да промовишемо заједничке активности. Да промовишемо и друштво и часопис на њиховим скуповима и на тај начин ћемо имати вероватно и више радова из тих наших братских, суседних држава које су заједно са нама и које су делегирале своје чланство у нашу организацију“.

Исказујући пуну подршку Научног друштва у реализацији ових изванредних идеја, професор Пејановић је ставио на гласање План активности НДАЕБ за 2017. годину са допунама, који је једногласно прихваћен.

АД-5.

5. Разно

С обзиром да није било пријављених за дискусију под тачком 5, председник Научног друштва, професор Радован Пејановић се захвалио присутним члановима Скупштине на ефикасном учешћу у раду. Састанак је завршен у 14 часова.

У Београду, 21. марта 2017. године

Записник водила:
др Јелена Премовић

Оверивачи записника:
проф. др Зорица Васиљевић
проф. др Јонел Субић

**DETAIL INSTRUCTIONS TO AUTHORS WITH TEMPLATE FOR THE
ARTICLES THAT WILL BE PUBLISHED IN JOURNAL ECONOMICS OF
AGRICULTURE**

The ECONOMICS OF AGRICULTURE is an international scientific journal, published quarterly by Balkan Scientific Association of Agricultural Economists (BSAAE) in cooperation with Institute of Agricultural Economics Belgrade (IAE) and Academy of Economic Studies Bucharest (ASE), in which are published original scientific papers (double reviewed), review articles, pre-announcements, book reviews, short communications and research reports. Research reports and book reviews will be accepted after previous consultation/invitation with/from either a journal Editor, or Editor of the book review, in accordance with the journal submission criteria.

The journal ECONOMICS OF AGRICULTURE accepts only articles submitted electronically on English language, as e-mail attachment to the following e-mail address: economicsofagriculture@ea.bg.ac.rs and epoljoprivrede@gmail.com

The articles have to be submitted in duplicate, providing one copy without information about author(s), in order not to violate double-blind review process. In the second copy of the article must be specified all information about author(s) (in required format) that are necessary for further correspondence and full transparency of published article.

Submission of articles to the ECONOMICS OF AGRICULTURE implies that their content has not been published previously in English, or in any other language. Also, submitted papers should not be under consideration for their publication elsewhere (in some other journal) and their publication has to be approved by all authors with signed declaration. Publisher reserves right to verify originality of submitted article by use of specialized software for plagiarism detection.

REVIEW PROCESS

The articles submitted to the journal ECONOMICS OF AGRICULTURE will be double blind (peer) reviewed and must have two positive reviews consistent to the generally accepted scientific standards. The reviewer independently and autonomously evaluates the article and could give a positive review, suggest some corrections, or give a negative review. In case that the review reports are antagonistic (one is positive and the second one is negative) the final decision will be on third review. Manuscript returned to the author(s) for revision does not guarantee the publication acceptance after article correction. The final decision for publication will be made after repeated review of the revised manuscript. If the article is evaluated positively and accepted for publication, each author has to sign the warranty of paper originality and confirm the copyright transfer to the journal ECONOMICS OF AGRICULTURE.

RULES FOR TECHNICAL PREPARATION OF ARTICLES

These Instructions will give all necessary information to author(s), as well as template for the articles preparation before their submission for publication in the journal Economics of Agriculture. We are asking you to use this document with a maximal attention, in other words to realize it as a set of instructions and practical example that will contribute to easier and more efficient operation under your article within the all phases of journal editing. Articles that deviate from mentioned template are not be taken into consideration.

Page setup: **Paper size:** *width* 170 mm x *height* 240 mm; **Margins:** top/bottom 20 mm, left/right 18 mm; **Layout:** *header* 1,25cm, *footer* 1,25cm; **Orientation:** Portrait. Paper volume up to 30.000 characters (without spaces) or 15 pages is preferable. Articles should not be shorter than 10 pages. Depending on papers' quality, Editorial Board could also accept longer articles. Article has to be prepared electronically (on computer), in program **Microsoft Word XP** or some later version of this program.

Below is a detail **Template** (technical instructions) for correct preparation of articles that will be submitted to the journal Economics of Agriculture. You are asked to maximum possible follow the technical instruction given by the following template.

TEMPLATE: TITLE OF THE ARTICLE (CENTRED, TNR, SIZE 12, BOLD, ALL CAPITAL LETTERS, MAXIMUM IN TWO LINES)¹

Anđela Marković², Petar Petrović³, Mirko Mirković⁴

Summary

It is desirable that Summary contains up to 150 words, as well as to contain all essential paper elements, such as goal(s), used method(s), important results and general authors' conclusion(s).

During the summary writing, it should be used font Times New Roman (TNR), font size 11, Italic, alignment text Justify, line spacing single, with interspace of 6 pt between paragraphs, without indentation of the first line.

Please, avoid the use of the indexes and special symbols within the Summary, and define all abbreviations whenever they are used for first time. Do not cite references in Summary.

Author(s) from Serbia are submitting article title, summary, key words and information about themselves on Serbian language at the end of the article, after the list of used literature. Text of the Serbian and English version of Summary must match in every sense.

Key words: *note, maximally, five, key, words.*

JEL: *Q16, M24* (www.aeaweb.org/jel/jel_class_system.php)

1 Paper is a part of research within the project no. III 46006 - Sustainable agriculture and rural development in the function of accomplishing strategic objectives of the Republic of Serbia in the Danube region, financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia. Project period: 2011-2014. ***This segment is not obligatory within the paper.***

2 Anđela Marković, Ph.D., Principal Research Fellow, Institute of Agricultural Economics, Volgina Street no. 15, 11060 Belgrade, Serbia, Phone: +381 11 444 444/int 112, E-mail: andjela.markovic@iep.bg.ac.rs

3 Petar Petrović, Ph.D., Full Professor, University of Belgrade, Faculty of Agriculture, Nemanjina Street no. 6, 11080 Zemun, Serbia, Phone: +381 11 222 222, E-mail: petar.petrovic@gmail.com

4 Mirko Mirković, M.A., Assistant, University in Belgrade, Faculty of Forestry, Kneza Visaslava Street no. 1, 11000 Belgrade, Serbia, Phone: +381 64 33 33 333, E-mail: mirko.mirkovic@yahoo.com

Introduction

Please strictly follow the instructions on article formatting, as well as styles provided in this template. Do not change font size, interspace between paragraphs and line spacing to insert more text into a conditionally limited number of pages.

Editorial Board organizes process of review of submitted articles and selects papers for publication based on the performed review, in other words according to estimated quality of the articles by the appointed reviewers. However, the ultimate responsibility for the views, originality and stands within the articles is exclusively on author(s) of manuscripts.

Please follow the basic principles of scientific papers structuring and try as much as possible to write a paper with next segments: Introduction, Paper goals, Data sources, Methodology, Results with Discussion, Conclusion (with Recommendations), Literature, etc.

During the article writing, it should be used font **Times New Roman (TNR)**, **font size 11**, alignment text **Justify**, **Line Spacing Single**, with **interspace of 6 pt between paragraphs, without indentation of the first line**. Articles should be written only in English. It is advisable to write the article in the third-person singular or plural with the use of active form. Before paper submission, please check grammatical and spelling mistakes by the spellchecker for the English language.

Sub-headings should be written by font **Times New Roman**, **font size 11, bold, centred**, only first letter capital, interspace between sub-heading and paragraph above 12 pt (**before 12 pt**), and interspace between sub-heading and paragraph below 6 pt (**after 6 pt**). Please use the writing style presented in this template.

Please define **abbreviations and acronyms** during their first occurrence within the text, even in case that they were previously defined in article summary. Do not use abbreviations in article title, unless they can not be avoided.

For **equations and formulas** use the Microsoft Equation Editor or addition for equations writing MathType (www.mathtype.com). Use of built-in equation editor within the program Word 2007 is not recommended. Please check if all symbols within the equations/formulas are defined (forthwith after equation/formula).

Reference (author(s) of quotes) has to be entered directly in the text of article in next form (Petrović, 2012; or Petrović, Marković, 2012; or Mirković et al., 2012). Please do not write them as indexes in square brackets [3] or in footnote. Try to use a footnote only in the case of closer explanation of certain terms, or clarification of real and hypohetic situations. Do not numerate the pages.

Tables have to be created within the text of article, not taken in the form of images from other documents. Tables should be numerated according to order of their appearance. Titles of the tables have to be given immediately above the table to which they relate.

Please use following style during their formatting. Title of the table should be set with the interspace 6 pt - before and 3pt - after, in font TNR, font size 11, alignment Justified. Text within the table should be written in the font TNR, font size 9. Bold the text in the heading. Sources and possible notes should be set with the interspace 3 pt above table (before). Sources and notes should be written in font TNR, font size 10, alignment Justified. Start with next paragraph at the interspace of 6 pt from the table source or note (after). During the article writing please mark in the main text all calls to a certain table (*Table 5.*). Try to fit all tables in article within the specified format of the page (Table properties – preferred width – max 97% - alignment: center). Complete text within the table cells has to be entered in next form (paragraph - spacing: before/after 0 pt, line spacing: single). In case when table breaks on next page, broken part of the table on next page has to be accompanied by a table header.

Table 5. The distribution cost of packaged goods from Subotica to retail-store objects

Indicators	Period			Total
	Month 1	Month 2	Month 3	
Distance crossed (km)	12.926	11.295	13.208	37.429
Fuel consumption (litre)	3.231	2.823	3.302	9.356
Value of fuel consumption (RSD)	242.378	211.790	247.653	701.821
Total time spend on touring (hour)	314	266	417	997
Value of total time spend on touring (RSD)	47.048	39.890	62.570	149.508
Number of tours	98	77	102	277
Toll value (RSD)	0	0	0	0
Number of pallets transported (piece)	1.179	976	1358	3.513
Total weight transported (kg)	602.600	429.225	711.116	1.742.941
Vehicle maintenance costs (RSD)	203.858	164.970	224.806	593.634
Lease costs (RSD)	480.938	454.214	565.784	1.500.936
Total sum (RSD)	974.222	870.864	1.100.813	2.945.899

Source: Petrović, 2012;

Note: Values within the table are calculated without Value Added Tax (VAT)

Graphs, dendrograms, diagrams, schemes and pictures should be entered within the text of article (do not use option Float over text) and numerated according to order of their appearance. Their titles have to be positioned immediately above the graph, dendrogram, diagram, scheme or picture to which they relate. Please, have in mind that all titles, sources and notes have to be written by identical style which was used for tables formatting. During the article writing please mark in the main text all calls to a certain graph, dendrogram, diagram, scheme or picture (*Graph 2.*). All graphs, dendrograms, diagrams, schemes and pictures within the paper have to fit the specified format of the page, as well as they have been centrally positioned. Photos and images are not desirable in the paper, but if they can not be avoided, please use an optimal resolution (low resolution can bring to pixelization and worn edges, while to high resolution only increase file size without any contribution to article readability).

During the writing of the article conclusion, please have in mind that **Conclusion** can provide a concise overview of the main results of the article. Do not repeat parts of Summary in this place. Conclusion can explain the importance of article, or it can give recommendations for further action, or it can suggest further work on exposed theme.

Literature has to be set at the end of article (for authors from Serbia before summary in Serbian language), in alphabetical order, according to the author's surname. *All references should be cited in original language (in the language on which are published before), in the volume in which are used within the manuscript preparation.* Literature units have to be written in font TNR, font size 11, alignment Justified, with mutual interspace of 3 pt - before/after. In all literature units only surnames are written as a whole, while all authors' names has to be shorten on to initial (initials have to be set after surnames). Please, write surnames of all authors (do not use the style Petrović et al.). Do not combine literature units (under each ordinal number can be only one literature unit) and always write complete titles of used literature units. If used/cited literature was taken over from the internet publication, after adequate writing of literature unit, in brackets has to be noted complete link from which material was taken over (available at: www.petarpetrovic.pdf). Please follow the presented examples for the proper writing of different types of literature units.

Literature

1. Marković, A. (year): *Title of the Book*, Publisher, City of Publisher, Country of Publisher.
2. Petrović, P., Mirković, M. (year): *Title of the book chapter*, in Book – title of the book, ch. no. x, pp. xxx–xxx, Publisher, City of Publisher, Country of Publisher.
3. Petrović, P., Mirković, M., Marković, A. (year): *Title of the paper*, Title of Journal, vol. x, no. x, pp. xxx-xxx, Publisher, City of Publisher, Country of Publisher, (available at: www.petarpetrovic.pdf).
4. Petrović, P., Mirković, M. (year): *Title of the conference paper/presentation*, Proceedings from the conference - Title of the conference, City, Country, vol. xx, pp. xx-xx.
5. Marković, A. (or name/abbreviation of the Institution/company, for example FAO/UN/IAE) (year): *Title of report/yearbook*, no. of report xxx, City and Country of publisher/institution/company, (available at: www.fao.org/pdf).
6. Petrović, P., Mirković, M. (date): *Title of the newspaper article*, Newspaper title, City, Country, no. xx, (available at: www.politika.com/nauka/20%/srbija).
7. Petrović, P. (year): *Title of Ph.D. dissertation*, Ph.D. dissertation, Name of Faculty, Name of University, City, Country.
8. Marković, A. (or name/abbreviation of the Institution/company that develop patent, for example Faculty of Agriculture/IAE) (year): *Title of the patent*, Name of the institution that was registered patent, reg. no. of patent x xxx xxx, City, Country.
9. *Title of the Law/regulation*, Official Gazette, Country, no. and year.
10. *Title of Standard*, Standard no. xxx, standard developer, year, City, Country.

DETALJNO UPUTSTVO AUTORIMA I ŠABLON ZA RADOVE KOJI SE OBJAVLJUJU U ČASOPISU EKONOMIKA POLJOPRIVREDE

EKONOMIKA POLJOPRIVREDE je međunarodni naučni časopis, koji kvartalno publikuje Naučno društvo agrarnih ekonomista Balkana (NDAEB) u saradnji sa Institutom za ekonomiku poljoprivrede iz Beograd (IEP) i Univerzitetom ekonomskih nauka iz Bukurešta (ASE). U časopisu se publikuju originalni naučni radovi (dvaputa recenzirani), pregledni članci, prethodna saopštenja, prikazi knjiga, kratki osvrti i izveštaji istraživanja. Izveštaji istraživanja i prikazi knjiga se prihvataju nakon prethodne konsultacije/poziva od strane urednika časopisa, ili urednika prikaza knjige, usklađeni sa kriterijumima podnošenja radova.

Časopis EKONOMIKA POLJOPRIVREDE prihvata samo radove na engleskom jeziku, podnešene E-mejlom (kao attachment) na adresu: economicsofagriculture@ea.bg.ac.rs i epoljoprivrede@gmail.com

Radovi se dostavljaju u duplikatu, s tim da se na jednom primerku uklonjeni podaci o autorima, kako se ne bi narušio proces anonimnosti recenzije. U drugom primerku rada navode se sve informacije o autorima (u zahtevanom obliku) neophodne za dalju korespondenciju i punu transparentnost publikovanog rada.

Radovi koji se dostavljaju časopisu EKONOMIKA POLJOPRIVREDE moraju posedovati sadržaj istraživanja koja prethodno nisu publikovana na engleskom ili nekom drugom jeziku. Takođe, podnešeni radovi ne smeju biti u procesu razmatranja za publikovanje u nekom drugom časopisu, te njihova publikacija mora biti odobrena od strane svih autora potpisanom izjavom. Izdavač zadržava pravo provere originalnosti dostavljenog rada specijalizovanim softverom za otkrivanje plagijata.

PROCES RECENZIJE

Radovi podnešeni časopisu EKONOMIKA POLJOPRIVREDE podležu duploj anonimnoj (double-blind) recenziji i moraju imati obe pozitivne recenzije usaglašene sa opšteprihvaćenim naučnim standardima. Recenzent samostalno i anonimno ocenjuje rukopis, te može dati pozitivnu recenziju, predlog dorade rada, ili negativnu recenziju. U slučaju antagonističnih recenzija (jedna je pozitivna, a druga negativna) konačna odluka se donosi na osnovu treće recenzije. Rad vraćen autorima na ispravku ne garantuje njegovo objavljivanje po urađenim korekcijama. Konačna odluka o publikovanju će biti donešena nakon ponovljenog procesa recenzije rukopisa. Ukoliko je rad pozitivno ocenjen i prihvaćen za publikovanje, svaki od autora mora potpisati garanciju originalnosti rada i odobrenje za prenos autorskih prava na časopis EKONOMIKA POLJOPRIVREDE.

PRAVILA TEHNIČKE PRIPREME RADOVA

Ovo uputstvo za autore daje sve neophodne informacije, kao i šablon za pripremu radova pre podnošenja za publikovanje u časopisu Ekonomika poljoprivrede. Molimo Vas da maksimalno pažljivo pristupite korišćenju ovog dokumenta, odnosno da ga shvatite kao skup uputstava i praktičan primer koji u mnogome doprinosi lakšoj i efikasnijoj manipulaciji nad Vašim radom u svim fazama uređivanja časopisa. Radovi koji odstupaju od datog šablona se neće uzimati u razmatranje.

Format strane (paper size): *Width* 170 mm x *Height* 240 mm; **Margine:** gore/dole 20 mm, levo/desno 18 mm; **Layout:** *Header* 1,25cm, *Footer* 1,25cm; **Orientation:** Portrait. Preferira se **obim radova** do maksimalnih 30.000 karaktera (bez razmaka), odnosno 15 stranica. Radovi ne bi trebalo da budu kraći od 10 stranica. U zavisnosti od kvaliteta rada Uredništvo može prihvatiti i duže radove. Molimo Vas da radove pripremate na računaru u programu **Microsoft Word XP** ili nekoj kasnijoj verziji ovog programa.

U nastavku sledi detaljan **Šablon** (tehničko uputstvo) za pravilnu pripremu radova za časopis Ekonomika poljoprivrede. Molimo Vas da maksimalno moguće poštujuete tehnička pravila data sledećim šablonom.

ŠABLON: NASLOV RADA (CENTRIRAN, TNR SIZE 12, BOLD, SVA SLOVA VELIKA, MAKSIMALNO DVA REDA)¹

Anđela Marković², Petar Petrović³, Mirko Mirković⁴

Summary

Poželjno je da rezime sadrži do 150 reči, te da sadrži sve bitne činjenice rada, poput cilja rada, korišćene metode, najvažnijih rezultata i osnovnih zaključaka autora.

Tokom pisanja rezimea treba koristiti slova Times New Roman (TNR), veličina fonta (font size) 11, Italic, ravnanje teksta Justify, a tekst rezimea pisati bez proreda (Line Spacing Single), sa razmakom od 6 pt između pasusa, bez uvlačenja prvog reda.

Izbegavajte korišćenje indeksa i specijalnih simbola u apstraktu, odnosno definišite sve skraććenice u apstraktu kada se prvi put upotrebe. Nemojte citirati reference u apstraktu.

Autori iz Srbije šalju naslov rada, rezime rada, ključne reči i podatke o sebi i na srpskom jeziku na kraju rada, ispod listinga korišćene literature. Tekst srpske i engleske verzije apstrakta i ključnih reči se moraju podudarati u svakom pogledu.

Key words: *navesti, maksimalno, pet, ključnih, reči.*

JEL: *Q16, M24* (www.aeaweb.org/jel/jel_class_system.php)

-
- 1 Paper is a part of research within the project no. III 46006 - Sustainable agriculture and rural development in the function of accomplishing strategic objectives of the Republic of Serbia in the Danube region, financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia. Project period: 2011-2014. ***Ovaj segment nije obliigoran u radu.***
 - 2 Anđela Marković, Ph.D., Principal Research Fellow, Institute of Agricultural Economics, Volgina Street no. 15, 11060 Belgrade, Serbia, Phone: +381 11 444 444/int 112, E-mail: andjela.markovic@iep.bg.ac.rs
 - 3 Petar Petrović, Ph.D., Full Professor, University of Belgrade, Faculty of Agriculture, Nemanjina Street no. 6, 11080 Zemun, Serbia, Phone: +381 11 222 222, E-mail: petar.petrovic@gmail.com
 - 4 Mirko Mirković, M.A., Assistant, University in Belgrade, Faculty of Forestry, Kneza Visoslava Street no. 1, 11000 Belgrade, Serbia, Phone: +381 64 33 33 333, E-mail: mirko.mirkovic@yahoo.com

Introduction

Molimo Vas da striktno poštujuete uputstva o formatiranju i stilove date u ovom šablonu. Ne menjajte veličinu fonta ili razmak redova da biste ubacili više teksta u uslovno ograničeni broj stranica.

Uredništvo organizuje proces recenziranja pristiglih radova i vrši odabir radova za publikovanje na osnovu urađenih recenzija, odnosno procenjenog kvaliteta radova od strane imenovanih recezenata. Međutim, krajnja odgovornost za poglede, originalnost i tvrdnje iznete u radovima počiva isključivo na autorima rada.

Molimo Vas da poštujuete osnovna načela strukturiranja naučnih radova, odnosno trudite se koliko je to moguće da Vaš rad ima sledeće segmente: Uvod, Cilja rada i korišćena metodologija, Rezultati rada sa diskusijom, Zaključak, Literatura.

Tokom pisanja rada treba koristiti slova **Times New Roman (TNR)**, veličina fonta (**font size**) **11**, ravnanje teksta **Justify**, a tekst rada pisati bez proreda (**Line Spacing Single**), sa razmakom od **6 pt između pasusa, bez uvlačenja prvog reda**. Radovi se pišu isključivo na engleskom jeziku. Preporučljivo je rad pisati u trećem licu jednine ili množine uz korišćenje aktivnog oblika. Pre slanja rada, obavezno proveriti pravopisne greške putem spellchecker-a za engleski jezik.

Podnaslovi se pišu fontom **Times New Roman**, veličina fonta (**font size**) **11, bold, centrirano**, samo prvo slovo veliko, razmak podnaslova i teksta iznad 12 pt (**before 12 pt**), a razmak podnaslova i teksta ispod 6 pt (**after 6 pt**). Molimo Vas koristiti prikazani stil pisanja u ovom šablonu.

Molimo Vas da definišete **skraćenice i akronime** prilikom prvog pojavljivanja u tekstu rada, čak i u slučaju da su već bili definisani u apstraktu rada. Ne koristite skraćenice u naslovu rada osim ukoliko se one apsolutno ne mogu izbeći

Radi unosa **jednačina i formula** u rad, koristite Microsoft Equation Editor ili dodatak za pisanje jednačina MathType (www.mathtype.com). Ne preporučuje se korišćenje ugrađenog editor jednačina iz programa Word 2007. Proverite da li ste definisali sve simbole u jednačini (neposredno posle jednačine).

Reference (autori citata) se navode direktno u tekstu rada u sledećem obliku (Petrović, 2012; ili Petrović, Marković, 2012; ili Mirković et al., 2012). Ne navodite ih kao indekse u četvrtastoj zagradi [3] ili u fusnoti. Trudite se da fusnotu koristite samo u slučaju bližih objašnjenja određenih pojmova, odnosno razjašnjenja realnih ili hipotetičkih situacija. Nemojte vršiti numeraciju stranica.

Tabele moraju biti formirane u tekstu rada, a ne preuzete u formi slika iz drugih materijala. Tabele unositi u sam tekst rada i numerisati ih prema redosledu njihovog pojavljivanja. Nazivi tabela moraju biti dati neposredno iznad tabele na koju se odnose. Koristite dole prikazani stil tokom njihovog formatiranja. Naslov tabela pisati sa razmakom 6 pt – iznad/before i 3pt – ispod/after, u fontu TNR, font size 11, ravnanje Justified. Tekst unutar tabela pisati fontom TNR, font size 9. Tekst u zaglavlju tabela boldirati. Izvor i potencijalne napomene pisati sa razmakom 3 pt ispod tabela (before). Izvore i napomene pisati u fontu TNR, font size 10,

ravnanje Justified. Naredni pasus početi na razmaku od 6pt od izvora tabele ili napomene (after). Tokom pisanja rada u originalnom tekstu treba markirati poziv na određenu tabelu (Table 5.). Trudite se da se sve tabele u radu veličinom uklapaju u zadati format strane (Table properties – preferred width – max 97% - alignment: center). Sav tekst u poljima tabele treba unositi u formi (paragraph – spacing: before/after 0pt, line spacing: single). U slučaju da se tabela lomi na narednu stranicu, molimo Vas da prelomljeni deo tabele na narednoj stranici bude propraćen zaglavljem tabele.

Table 5. The distribution cost of packaged goods from Subotica to retail-store objects

Indicators	Period			Total
	Month 1	Month 2	Month 3	
Distance crossed (km)	12.926	11.295	13.208	37.429
Fuel consumption (litre)	3.231	2.823	3.302	9.356
Value of fuel consumption (RSD)	242.378	211.790	247.653	701.821
Total time spend on touring (hour)	314	266	417	997
Value of total time spend on touring (RSD)	47.048	39.890	62.570	149.508
Number of tours	98	77	102	277
Toll value (RSD)	0	0	0	0
Number of pallets transported (piece)	1.179	976	1358	3.513
Total weight transported (kg)	602.600	429.225	711.116	1.742.941
Vehicle maintenance costs (RSD)	203.858	164.970	224.806	593.634
Lease costs (RSD)	480.938	454.214	565.784	1.500.936
Total sum (RSD)	974.222	870.864	1.100.813	2.945.899

Source: Petrović, 2012;

Note: Values within the table are calculated without Value Added Tax (VAT)

Grafike, dendrograme, dijagrame, šeme i slike treba unositi u sam tekst rada (ne koristiti opciju Float over text) i numerisati ih prema redosledu njihovog pojavljivanja. Njihovi nazivi se moraju pozicionirati neposredno iznad grafika, dendrograma, dijagrama, šeme ili slike na koju se odnose. Kod navođenja naslova, izvora i napomena koristiti isti stil koji je predhodno prikazan za formiranje tabele. Tokom pisanja rada u originalnom tekstu treba markirati pozive na određeni grafik, dendrogram, dijagram, šemu ili sliku (*Graph 2.*). Svi grafici, dendrogrami, dijagrami, šeme i slike u radu se svojom veličinom moraju uklapati u zadati format strane, te moraju biti centralno postavljeni. Fotografije nisu poželjne u predmetnom radu, a ukoliko se one ne mogu izbeći molimo Vas da koristite optimalnu rezoluciju (preniska rezolucija dovodi do pikselacije i krzavih ivica, dok previsoka samo povećava veličinu fajla bez doprinosa čitljivosti rada).

Kod pisanja zaključka rada, molimo Vas imajte na umu da iako **Zaključak** može dati sažeti pregled glavnih rezultata rada, nemojte ponavljati apstrakt na ovome mestu. Zaključak može objasniti značaj rada, dati preporuke za dalje delovanje ili predložiti dalji rad na obrađivanoj temi.

Literatura se navodi na kraju rada (kod autora iz Srbije pre rezimea na srpskom jeziku), abecednim redom, prema prezimenu autora. **Molimo Vas da reference navodite u originalu (na jeziku na kome su objavljene) u obimu u kom su korišćene/citirane tokom pisanja**

rada. Literaturu navoditi u fontu TNR, font size 11, ravnanje Justified, sa međusobnim razmakom 3pt – iznad/before i 3pt – ispod/after. U svim literaturnim jedinicama samo se prezimena daju u punom obimu, dok se sva imena autora skraćuju na inicijal i stavljaju posle prezimena. Molimo Vas da navodite prezimena svih autora, a ne da koristite stil navođenja Petrović et al. Nemojte kombinovati literaturne jedinice (pod jednim rednim brojem može biti samo jedna referenca) i uvek pišite pune naslove u radu korišćenih literaturnih jedinica. Ukoliko je korišćena/citirana literatura preuzeta iz internet publikacija, posle pravilno izvršenog imenovanja literaturne jedinice u zagradi se mora navesti kompletan link sa koga je materijal preuzet (available at: www.petarpetrovic.pdf). Molimo Vas pridržavajte se dole navedenih primera navođenja različitih tipova literaturnih jedinica i referenci.

Literature

1. Marković, A. (godina izdanja): *Naslov knjige*, Izdavač, Mesto i Zemlja izdavača.
2. Petrović, P., Mirković, M. (godina izdanja): *Naslov poglavlja u knjizi*, u knjizi – Naslov knjige, ch. br. x, str. xxx–xxx, Izdavač, Mesto i Zemlja izdavača.
3. Petrović, P., Mirković, M., Marković, A. (godina izdanja): *Naslov rada*, Časopis, vol. x, br. x, str. xxx-xxx, Izdavač, Mesto i Zemlja izdavača, (dostupno na: www.petarpetrovic.pdf).
4. Petrović, P., Mirković, M. (godina izdanja): *Naslov konferencijskog rada/prezentacije*, Zbornik radova sa konferencije – Naziv konferencije, Mesto, Zemlja, vol. xx, str. xx-xx.
5. Marković, A. (ili ime/skraćenica Institucije/Kompanije, na primer FAO/United Nations/IEP) (godina izdanja): *Naslov izveštaja/godišnjaka*, br. izveštaja xxx, Mesto i Zemlja izdavača/institucije/kompanije, (dostupno na: www.fao.org/pdf).
6. Petrović, P., Mirković, M. (godina izdanja): *Naslov novinskog članka*, Naziv novina, Mesto, Zemlja, br. xx, (dostupno na: www.politika.com/nauka/20%/srbija).
7. Petrović, P. (godina izdanja): *Naslov doktorske disertacije*, doktorska disertacija, Fakultet, Univerzitet, Mesto, Zemlja.
8. Marković, A. (ili ime/skraćenica Institucije/Kompanije koja je razvila patent, na primer Poljoprivredni fakultet/IEP) (godina registracije patenta): *Naziv patenta*, Institucija koja je registrovala patent, reg. br. patenta - x xxx xxx, Mesto, Zemlja.
9. *Naziv zakona/uredbe*, Službeni glasnik, Zemlja, br. i godina izdanja.
10. *Naziv standarda*, Standard br. xxx, izdavač standarda, godina izdanja, Mesto, Zemlja.

Technical preparation, prepress and printing:

DIS PUBLIC D.O.O., Braće Jerković 111-25, Belgrade, phone/fax: 011/39-79-789

Number of copies:

300 copies

Published quarterly

Journal is registered in major scientific databases:

- EBSCO,
- AgEcon Search,
- Social Science Research Network (SSRN),
- ProQuest,
- Ulrich's Periodicals Directory,
- CABI,
- J-Gate,
- The World Wide Web Virtual Library for European Integration,
- SCIndeks,
- EconLit

Journal is indexed in major scientific databases:

- Index Copernicus Journals Master List (ICV2013: 5,22).

CIP - Каталогизација у публикацији
Народна библиотека Србије, Београд

33:63(497.11)

ЕКОНОМИКА пољопривреде = Economics of
Agriculture / editor-in-chief Drago
Свијановић. - Год. 26, бр. 5 (1979)- . -
Београд : Научно друштво аграрних економиста
Балкана : Институт за економику пољопривреде
; Букурешт : Академија економских наука,
1979- (Belgrade : Dis Public). - 24 cm

Тромесечно. - Је наставак: Економика
производње хране = ISSN 0352-3454. - Друго
издање на другом медијуму: Економика
пољопривреде (Online) = ISSN 2334-8453
ISSN 0352-3462 = Економика пољопривреде
(1979)
COBISS.SR-ID 27671

The Ministry of Education, Science and Technological Development of the Republic
of Serbia provides financial support for publishing of the quarterly journal
ECONOMICS OF AGRICULTURE

