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IMPACT OF GLOBALIZATION ON VEGETABLE CROPS PRODUCTION PER CAPITA IN SERBIA (2000-2012)[2]

Abstract

Subject of this paper is to introduce the concept of globalization in general, and the possibility of making different strategies of development of this sector in Serbia. It also states the importance of the establishment of the World Trade Organization (WTO), which can be said with certainty that it is initiator of the globalization of all sectors of the economy. The aim of the study was to determine the strength of the globalization on agriculture in Serbia. Finally, given is the production of selected vegetables (potatoes, beans, peppers and tomatoes) in Serbia in the period 2000 - 2012 total and by population. Research methods are based on a literature search of specify themes, consultation with experts in agriculture and application of mathematical and statistical methods (rate of change).

Key words: *globalization, WTO, transition, farming, population*

Jel Classification: Q10, Q13

УТИЦАЈ ГЛОБАЛИЗАЦИЈЕ НА ПРОИЗВОДЊУ ПОВРТАРСКИХ КУЛТУРА ПО СТАНОВНИКУ У СРБИЈИ (2000-2012)

Апстракт

Предмет рада је увођење у појам глобализације уопште, као и могућности израде различитих стратегија развоја поменутог сектора у Србији. Наводи се и значај оснивања Светске трговинске организације (СТО) за коју се може са сигурношћу рећи да је иницијатор глобализације свих сектора привреде. Циљ рада је да се утврди јачина глобализације на пољопривреду Србије. Напослетку, дата је производња изабраних повртарских култура (кромпир, пасуљ, паприка и парадајз) у Србији у периоду 2000 – 2012 укупно и по броју становника. Методе истраживања су засноване на претраживању литературе из задате области, консултацији са стручњацима у пољопривреди, као и примени математичко статистичке методе (стопа промене).

Кључне речи: *глобализација, СТО, транзиција, повртарство, становништво*

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Introduction

Globalization is a process or a set of processes that include transformation in the spatial organization of social relations and transactions. The process of transition changes is usually followed by a series of negative consequences of which are regular: the emergence of the recession, social insecurity, reducing the number of employees, social stratification, corruption, a drastic drop in living standards and others. The main initiator of global trade and globalization in general is the World Trade Organization (WTO). WTO is committed to removing all obstacles to achieve free trade, and thus to remove all economic borders between nations. Keeping in mind that the general globalization includes all sectors of the economy, accordingly and agriculture found in the globalization process. From the overall agricultural production was analyzed production of selected vegetables: potatoes, beans, peppers and tomatoes. Analysis of the sown area under mentioned vegetable crops and production given per capita and the period of analysis is 2000-2012. Display table refers to the fact that the population of Serbia, year after year decreased steadily. The thirteen-year reporting period the population decreased by 317.269 (with 7,516,346 in 2000 to 7,199,077 in 2012), ie. averaged 24,405 less per year. Natality rate is 9.3 ‰ and 14.2 ‰ mortality rate. Areas under selected vegetable crops are constantly varied, with a significant decrease of surface, especially from 2010-2012. These results show that although the number of inhabitants decreased, the area under arable land have remained unchanged or decreased again, but this reduction was not any faster than the population decline. However, in those years in which the total production of crops grew, grew and production per capita, which is contradictory to the fact that the population is declining. Thus, the decline in production povtarskih culture was negligible compared to the population decline.

Definition of globalization

Many scientists (domestic and foreign) point out different views and definitions of globalization. *Ikerd (2004)* states that globalization means global ecosystem and the market in which we can not influence. *Lovre et al. (2011)* point out that globalization is a process and a set of processes that include transformation in the spatial organization of social relations and transactions. *Vojnovic et al. (2006)* thinking that it can not avoid the fact that most of the national economy have led themselves in a very unfavorable economic conditions in which they should be out, so unless outside help is often no alternative. The process of transition changes is usually followed by a series of negative consequences of which are regular: the emergence of the recession, social insecurity, reducing the number of employees, social stratification, corruption, a drastic drop in living standards and others. *Kostić (2013)* states that globalization tends economic and information exchange, evens various cultural institutions, the mobility of people and so on. In the service of promoting globalization are used in fashion, education, sport, tourism and the like. It also states that globalization has entered the sovereignty of states, which sharpens the problem of national identity.

The importance of establishing the World Trade Organization (WTO)

The World Trade Organization (WTO) is dedicated to eliminating all obstacles to achieve free trade, and thus to remove all economic borders between nations. When economic boundaries are removed, the cultural boundaries to become clouded, and the

ecological limits will remain open to economic exploitation. Cultural and ecological diversity are considered as obstacles to economic progress. Thus, the global economy will allow greater geographic specialization, greater standardization of processes and products and enable global corporations to achieve even greater economies of scale (Ikerd, 2004). In the global agricultural economy, small farms will be replaced by large farms, which will be controlled by large multinational corporations. Small farmers simply can not compete on a free market global economy.

Access to global agricultural development of Serbia

Cvetkovic et al. (2008) suggest that further development of Serbia calls for a new system of development. The main changes that contribute to global agricultural development are reflected in the implementation of market liberalization and ownership transformation of enterprises. For Serbia to enter the second phase of the transition process, primarily has to complete the process of liberalization and privatization and to create macroeconomic stability. According to projected developments, Serbia and the agricultural sector are on totally opposite sides. The basic determinants of agro Serbia are *(Cvetkovic et al., 2008):*

- *general financial exhaustion;*
- *lack of working capital and investment funds;*
- *lack of organization;*
- *incoherence and fragmentation of business entities agriculture;*
- *low productivity and competitiveness, and the like.*

Although the share of agriculture in GDP high, this can not be attributed to good condition in agriculture, but also to other parts of the economy in crisis for many years. In order to increase the competitive advantages of domestic agricultural products is necessary to define competitive strategy. According to *Cvetkovic et al. (2008) „Strategy competitiveness of agro-industry should be included in all levels to achieve cost, price competitiveness and product quality."* So, domestic agricultural enterprises should comply with international business standards and to break with the politics of protection, but to improve and modernize the facilities for the production of healthy food.

Vegetable production per capita in Serbia (2000 – 2012)

In this section, it shall first be referred to the basic characteristics of selected vegetables: potatoes, beans, peppers and tomatoes.

Potatoes are native to the western parts of South America, where it is cultivated since ancient times. Potato is an important food crop and the volume of production in the world is in the range with rice, wheat and corn. Potato production on a worldwide basis is constantly increasing. Due to rapid economic development of China, India and Brazil, developing countries constants recorded an increase in production. Today the world leader in the production is China with 72,000,000 in 2007. The Republic of Serbia, potatoes are sown on 87,000 ha, of which Central Serbia to 67,000 ha, and 20,000 ha of AP Vojvodina *(http://www.poljoberza.net/AutorskiTekstoviJedan.aspx?ime=PG022_1a.htm&autor=7).*

Bean is the most famous and the most widespread legume in the world as a vegetable crop belongs to the group of grain legumes. Beans are definitely the most

popular legume, brought from America to Europe in the 16th century, along with potatoes and corn. None of vegetable crops, except potatoes, did not develop much variety and variations as beans. The largest producers are India, China, Indonesia, Brazil and the United States. In Serbia beans as main crop grown on an average of 24,000 ha, with an average yield of about 1.3 t/ha. Than that in Central Serbia on 16,000 ha in AP Vojvodina on 7,000 ha. The importance of beans as vegetables in nutrition of our population is large. The average annual consumption per capita in our country is more than 10 kg *(http://www.tehnologijahrane.com/tehnologijavoca-i-povrca/pasulj)*.

Pepper is mainly produced from seedlings and less direct sowing, except spicy pepper that is produced mainly by direct sowing. Technologically mature fruits are used in fresh, processed or preserved state. Leading countries in the production peppers are Spain, China, Italy, USA, Bulgaria, Hungary and others. In our country, grown on 19,000 ha, while in Central Serbia to 15,000 ha and AP Vojvodina on 5,000 ha. Pepper is one of the most cultivated and the most profitable crops, used in technological and physiological maturity, with spice is used for the production of ground pepper. Grown in the open field and greenhouse *(Kljajić et al., 2013)*.

Tomato is one of the most important types of vegetables to the global scale and in our country. In our climate tomato production is carried out in protected areas (tunnels, greenhouses) and in the open field growing from transplants or direct seed sowing at a fixed place. Growing tomatoes for fresh consumption to the greatest extent is (95%) performed over the production of seedlings, while the industrial tomato products usually direct seed sowing. In our country, grown on 21,000 ha, while in Central Serbia on about 15,000 ha and AP Vojvodina, about 6,000 ha *(Kljajić et al., 2013)*.

The movement of population in Serbia (2000-2012)

Population censuses are the primary source of statistical information on the number, territorial distribution and main characteristics of persons and households in the Republic of Serbia. According to data from vital statistics in 2012, the population growth rate is -4.9 ‰. The rate of population growth is 9.3 ‰ and 14.2 ‰ mortality rate. Republic Statistical Office since 1999 does not have specific data for AP Kosovo and Metohia, so they are not included in the data for the Republic of Serbia (total). The population of Serbia has registered a permanent decrease. Change in population is caused by the migration.In the period from 2002 to 2012, the number of population decreased by near 300, 954, the average annual growth rate was –4.0per 1.000 inhabitants. *(Statistical Yearbook, 2013)*. The following is a tabular overview of the number of population in Serbia in the period 2000-2012 (Table 1).

Table 1: Number of population in Serbia (2000-2012)

Year	Number of population
2000	7,516,346
2001	7,503,433
2002	7,500,031
2003	7,480,591
2004	7,463,157
2005	7,440,769
2006	7,411,569
2007	7,381,579
2008	7,350,222
2009	7,320,807
2010	7,291,436
2011	7,234,099
2012	7,199,077

Source:Statistical Office of the Republic of Serbia (2007, 2013): Statistical Yearbook, Belgrade

Table display 1 indicates that the population of Serbia, year after year decreased steadily. The thirteen-year reporting period the population decreased by 317,269 (with 7,516,346 in 2000 to 7,199,077 in 2012), ie. an average of 24,405 or less per year. This information may be referred to the conclusion that the annual emptied a village or a small town. The reasons for the decline in this number can be manifold: the mortality rate is higher than the birth rate, going abroad, many families with only one child, and the like. So, in 2012 there is 4.22% less population than in 2000. Tabular overview of population per year will be the basis for the calculation of many other indicators that will be analyzed in the remainder of this paper. Depending on the movement of the population will depend on the results obtained.

Production of selected vegetable crops in Serbia per capita (2000-2012)

Next table (Table 2) analyzed the arable field by way of using per capita for the period 2000-2012.

Table 2: A*rable field by way of using per capita (2000-2012)*

Year	Total	Total per capita	Cereals	Cereals per capita	Industrial crops	Industrial crops per capita	Vegetable crops	Vegetable crops per capita	Fodder crops	Fodder crops per capita
2000	3,214,000	0.43	2,057,000	0.27	363,000	0.05	313,000	0.04	480,000	0.06
2001	3,243,000	0.43	2,128,000	0.28	323,000	0.04	312,000	0.04	481,000	0.06
2002	3,190,000	0.43	2,102,000	0.28	328,000	0.04	293,000	0.04	466,000	0.06
2003	3,171,000	0.42	1,997,000	0.27	420,000	0.06	291,000	0.04	463,000	0.06
2004	3,165,000	0.42	2,020,000	0.27	389,000	0.05	292,000	0.04	464,000	0.06
2005	3,132,000	0.42	1,972,000	0.27	414,000	0.06	285,000	0.04	461,000	0.06
2006	3,067,000	0.41	1,888,000	0.25	436,000	0.06	284,000	0.04	458,000	0.06
2007	3,095,000	0.42	1,943,000	0.26	413,000	0.06	282,000	0.04	457,000	0.06
2008	3,099,000	0.42	1,937,000	0.26	416,000	0.06	281,000	0.04	466,000	0.06
2009	3,089,000	0.42	1,956,000	0.27	403,000	0.06	276,000	0.04	455,000	0.06
2010	3,066,000	0.42	1,894,000	0.26	439,000	0.06	273,000	0.04	460,000	0.06
2011	3,067,000	0.42	1,911,000	0.26	429,000	0.06	272,000	0.04	455,000	0.06
2012	3,060,000	0.43	1,919,000	0.27	421,000	0.06	264,000	0.04	456,000	0.06

Source:Statistical Office of the Republic of Serbia (2003, 2007, 2010, 2013): Statistical Yearbook, Belgrade

During the period, the total arable field have varied. Had the highest value in 2001 (3,243,000 ha), and the lowest in 2012 (3,060,000 ha). Although the population declined in the analyzed years, arable land has not changed significantly. So, in 2012, under arable fields was 5.64% less area compared to 2001. However, in the years between 2001 and 2012, the total area of arable field has decreased and increased, as shown in tables. Availability of arable land population was in the range 0.41 - 0.43 ha per capita. The smallest area of arable field to population is calculated for 2006 (0.41 ha per capita).

This year is the strongest decline in the total area of arable field compared to the previous year (2005). These results show that although the number of inhabitants decreased, the area under arable field have remained unchanged or decreased again, but this reduction was not any faster than the population decline. The reasons for the increase of arable field are the result of the conversion of land that had previously been for other purposes (meadow, pasture, orchard, vineyard) and after conversion influenced the growth of the total area of arable field. In Table 3 are displayed sown areas of selected vegetable crops per capita (2000-2012).

Table 3: Sown areas of selected vegetable crops per capita (2000-2012)

Year	Potatoes	Potatoes per capita	Bean	Bean per capita	Pepper	Pepper per capita	Tomatoes	Tomatoes per capita
2000	94,000	0.013	27,000	0.004	20,000	0.003	21,000	0.003
2001	94,000	0.013	25,000	0.003	19,000	0.003	21,000	0.003
2002	91,000	0.012	25,000	0.003	19,000	0.003	21,000	0.003
2003	88,000	0.012	25,000	0.003	20,000	0.003	21,000	0.003
2004	89,000	0.012	24,000	0.003	20,000	0.003	21,000	0.003
2005	85,000	0.011	23,000	0.003	19,000	0.003	20,000	0.003
2006	84,000	0.011	23,000	0.003	19,000	0.003	21,000	0.003
2007	81,000	0.011	23,000	0.003	19,000	0.003	21,000	0.003
2008	81,000	0.011	21,000	0.003	19,000	0.003	20,000	0.003
2009	78,000	0.011	21,000	0.003	19,000	0.003	20,000	0.003
2010	77,000	0.011	20,000	0.003	18,000	0.002	20,000	0.003
2011	78,000	0.011	20,000	0.003	18,000	0.002	20,000	0.003
2012	75,000	0.010	19,000	0.003	18,000	0.003	20,000	0.003

Source:Statistical Office of the Republic of Serbia (2004, 2009, 2011, 2013): Statistical Yearbook, Belgrade

During the period, sown areas under *potatoes* have varied. Had the highest value in 2000 and 2001 (94,000 ha) and the lowest in 2012 (75,000 ha). Although the population declined in the analyzed years, sown area under potatoes has declined slowly from population declines. So, in 2012 the potatoes was 20.21% less area compared to 2001. However, in the years between 2001 and 2012, the total area under potatoes has decreased and increased, as shown in tables. Availability of land under potatoes per capita ranged from 0.010 to 0.013 ha per capita. The smallest area under potatoes-to-population was calculated for the year 2012 (0.010 ha per capita). The most pronounced decline in area under potatoes was recorded in 2005 compared to the previous year (2004). These results show that although the number of inhabitants decreased, the area under potatoes have remained unchanged or decreased again, but this reduction was not any faster than the population decline. The reasons for the increase in the area under potatoes are the result of the conversion of land that had previously been for other purposes (meadow, pasture, orchard, vineyard) and after conversion influenced the growth of the above mentioned areas. During the period, the sown area under *beans* tended permanent decrease. Had the highest value in 2000 (27,000 ha) and the lowest in 2012 (19,000 ha). Although

the population declined in the analyzed years, sown area under beans has declined slowly from population declines. So, in 2012, under the beans was 29.63% less area compared to 2000. Thus, in the years between 2000 and 2012, the total area under beans exclusively was decreasing. Availability of land under beans per capita was 0.003 ha . The most pronounced decline in the area under beans was recorded in 2008 compared to the previous year (2007). These results show that although the number of inhabitants decreased, the surface of the beans have remained unchanged or decreased again, but this reduction was not any faster than the population decline. During the period, the sown area under *peppers* have varied. Had the highest value in 2000, 2003 and 2004 (20,000 ha) and the lowest in 2010, 2011 and 2012 (18,000 ha). Although the population declined in the analyzed years, sown area under pepper declined more slowly than the population decline. So, in 2012 under the pepper was 10.00% less area compared to 2000. Thus, in the years between 2000 and 2012, the total area under pepper growing and declining. Availability of the area under pepper per capita was in the range 0.002-0.003 ha. These results show that although the number of inhabitants decreased, the area under arable field have remained unchanged or decreased again, but this reduction was not any faster than the population decline. During the period, sown areas under *tomatoes* were not significantly changed. Had the highest value in 2000 (21,000 ha) and the lowest in 2012 (20,000 ha). Although the population declined in the analyzed years, sown area under tomato has declined slowly from population declines. So, in 2012 the tomato was 4.76% less surface area compared to 2000. Thus, in the years between 2000 and 2012, the total area under tomatoes varied. Availability of land under tomato per capita was 0.003 ha (as with beans). The most pronounced decline in the area under tomato has not been recorded. These results show that although the number of inhabitants decreased, the area under tomatoes are remained unchanged or decreased again, but this reduction was not any faster than the population decline. Table 4 will show achieved production of potatoes (kg) in Serbia per capita (2000-2012). However, the sown area (ha) and yield (kg/ha) will not be presented to the population due to the large range of values, and the results will not be adequate.

Table 4: Achieved production of potatoes (kg) in Serbia per capita (2000-2012)

Year	Area harvested (ha)	Production (kg)	Production (kg) per capita	Yield (kg/ha)
2000	93,897	620,923,000	83	6,600
2001	93,554	1,015,017,000	135	10,900
2002	91,199	917,579,000	122	10,100
2003	88,131	679,309,000	91	7,700
2004	89,050	975,090,000	131	11,000
2005	85,034	969,562,000	130	11,400
2006	84,434	930,305,000	126	11,000
2007	81,379	743,282,000	101	9,300
2008	81,172	843,545,000	115	10,400
2009	78,169	898,282,000	123	11,500
2010	76,675	887,363,000	122	11,600
2011	78,377	891,513,000	123	11,400
2012	75,449	577,966,000	80	7,700

Source:Statistical Office of the Republic of Serbia (2004, 2009, 2011, 2013): Statistical Yearbook, Belgrade

Harvested area under potatoes has the highest value in 2000 (93,897 ha), while the lowest was in 2012 (75,449 ha). Percentage decline in areas between 2000 and 2012 was 19.65%. *Potato production* has the highest value in 2001 (1,015,017,000 kg), although the surface was lower (93,554 ha) compared to 2000, when production was lower (620,923,000 kg). The minimum value of potato was produced in 2012 (577,966,000 kg). Percentage decline in output between 2001 and 2012 was 43.06%, which is almost twice less produced than in 2001. *Potato production is expressed in kg/ per capita* was the highest value in 2001 (135 kg/per capita), and the lowest in 2012 (80 kg/per capita). Percentage decline in the production per capita between 2001 and 2012 was 40.74%. It is notable that although the population steadily declined, output per capita is varied. However, in those years in which the total production of potatoes grew, grew and production per capita, which is contradictory to the fact that the population is declining. Thus, the decline in potato production was negligible compared to the population decline. *Yield of potatoes (kg/ha)* had the highest value in 2010 (11,600 kg/ ha) and lowest in 2000 (6,600 kg/ha). The percentage decrease in the yield of potatoes between 2000 and 2006 was 43.1%, which is almost twice less produced than in 2000. These facts are contradictory, because the yield was the highest in years when production and harvested area did not have the greatest value. Explanation for the rise in yields on the influence of favorable natural conditions in 2010 and a growing awareness of farmers for doing this type of farming.

Table 5 will show achieved production of beans (kg) in Serbia per capita (2000-2012). However, the harvested area (ha) and yield (kg/ha) will not be presented to the population due to the large range of values, and the results will not be adequate.

Table 5: Achieved production of beans (kg) in Serbia per capita (2000-2012)

Year	Area harvested (ha)	Production (kg)	Production (kg) per capita	Yield (kg/ha)
2000	26,475	32,409,000	4.31	600
2001	25,326	60,521,000	8.07	1,200
2002	25,042	56,592,000	7.55	1,100
2003	25,102	45,023,000	6.02	800
2004	24,383	59,939,000	8.03	1,200
2005	23,162	58,726,000	7.89	1,300
2006	22,678	54,585,000	7.36	1,200
2007	22,405	39,224,000	5.31	900
2008	21,366	42,183,000	5.74	1,100
2009	21,202	46,337,000	6.33	1,200
2010	20,268	43,237,000	5.93	1,200
2011	19,555	39,508,000	5.46	1,200
2012	18,851	26,849,000	3.73	1,000

Source:Statistical Office of the Republic of Serbia (2004, 2009, 2011, 2013): Statistical Yearbook, Belgrade

Harvested area under beans had the highest value in 2000 (26,475 ha), while the lowest was in 2012 (18,851 ha). Percentage decline in areas between 2000 and 2012 was 28.8%. *Production of beans* had the highest value in 2001 (60,521,000 kg), although the surface was smaller (25,326 ha) compared to 2000, when production was lower (32,409,000 kg). The minimum value of the beans were produced in 2012 (26,849,000 kg). Percentage decline in output between 2001 and 2012 was 55.64%, which is twice

less produced than in 2001. *Production of beans is expressed in kg/per capita* was the highest value in 2001 (8.07 kg/capita), and the lowest in 2012 (3.73 kg/capita). Percentage decline in the production per capita between 2001 and 2012 was 53.78%. It is notable that although the population steadily declined, output per capita is varied. However, in those years in which the total production of beans grew, grew and production per capita, which is contradictory to the fact that the population is declining. Thus, the decrease bean production was negligible compared to the population decline. *Yield of bean (kg/ha)* had the highest value in 2005 (1,300 kg/ha) and lowest in 2000 (600 kg/ha). The percentage decrease in the yield of beans between 2000 and 2006 was 53.85%, which is almost twice less produced than in 2000. These facts are contradictory, because the yield was the highest in years when production and harvested area did not have the greatest value.

Table 6 will show achieved pepper production (kg) in Serbia per capita (2000-2012). However, the harvested area (ha) and yield (kg/ha) will not be presented to the population due to the large range of values, and the results will not be adequate.

Table 6: Achieved peppers production (kg) in Serbia per capita (2000-2012)

Year	Area harvested (ha)	Production (kg)	Production (kg) per capita	Yield (kg/ha)
2000	19,887	137,392,000	18.28	6,900
2001	19,411	132,474,000	17.66	6,800
2002	19,460	144,446,000	19.26	7,400
2003	20,019	141,923,000	18.97	7,100
2004	19,760	143,649,000	19.25	7,300
2005	19,181	151,821,000	20.40	7,900
2006	19,416	177,255,000	23.92	9,200
2007	19,252	150,257,000	20.36	7,800
2008	18,827	151,317,000	20.59	8,000
2009	18,541	171,366,000	23.41	9,200
2010	18,475	154,953,000	21.25	8,400
2011	17,888	145,206,000	20.07	8,100
2012	17,480	130,104,000	18.07	7,400

Source:Statistical Office of the Republic of Serbia (2004, 2009, 2011, 2013): Statistical Yearbook, Belgrade

Harvested area under pepper had the highest value in 2003 (20,019 ha), while the lowest was in 2012 (17,480 ha). Percentage decline in areas between 2003 and 2012 was 12.68%. *Pepper production* had the highest value in 2006 (177,255,000 kg), although the surface was smaller (19,416 ha) compared to 2000, when production was lower (137,392,000 kg). The minimum value produced peppers was in 2012 (130,104,000 kg). Percentage decline in output between 2006 and 2012 was 26.6%. *Pepper production, expressed in kg/per capita* the highest value was in the year 2006 (23.92 kg/capita), and the lowest in 2001 (17.66 kg/capita). Percentage decline in the production per capita between 2001 and 2012 was 26.17%. It is notable that although the population steadily declined, output per capita is varied. However, in those years in which the total production peppers grew, grew and production per capita, which is contradictory to the fact that the population is declining. Thus, the decline peppers production was negligible compared to the population decline. *Pepper yield (kg/ha*) had the highest value in 2006 and 2009 (9,200 kg/ha) and lowest in 2001 (6,800 kg/ha). The percentage decrease in the

yield peppers between 2006 and 2009 was 26.09%. These facts are agreed, because the yield was the highest in a year when production recorded the highest value, but sowing area had the highest value.

Table 7 will be displayed achieved production of tomatoes (kg) in Serbia per capita (2000-2012). However, the harvested area (ha) and yield (kg/ha) will not be presented to the population due to the large range of values, and the results will not be adequate.

Table 7: Achieved production of tomatoes (kg) in Serbia per capita (2000-2012)

Year	Area harvested (ha)	Production (kg)	Production (kg) per capita	Yield (kg/ha)
2000	20,969	160,056,000	21.29	7,600
2001	20,856	175,184,000	23.35	8,400
2002	21,177	199,184,000	26.56	9,400
2003	21,209	163,606,000	21.87	7,700
2004	20,855	184,688,000	24.75	8,900
2005	20,428	169,076,000	22.72	8,300
2006	20,947	189,222,000	25.53	9,000
2007	20,583	152,005,000	20.59	7,400
2008	20,309	176,501,000	24.01	8,700
2009	19,921	189,353,000	25.87	9,500
2010	20,181	189,412,000	25.98	9,400
2011	20,229	198,677,000	27.46	9,800
2012	19,338	155,663,000	21.62	8,100

Source:Statistical Office of the Republic of Serbia (2004, 2009, 2011, 2013): Statistical Yearbook, Belgrade

Harvested area under tomato has the highest value in 2003 (21,209 ha), while the lowest was in 2012 (19,338 ha). Percentage decline in areas between 2003 and 2012 was 8.82%. *Tomato production* has the highest value in 2002 (199,184,000 kg), although the surface was smaller (21,177 ha). The minimum value of tomatoes were produced in 2007 (152,005,000 kg). Percentage decline in output between 2007 and 2012 was 23.69%. *Tomato production is expressed in kg/per capita* the highest value was in the year 2011 (27.46 kg/per capita), and the lowest in 2007 (20.59 kg/per capita). Percentage decline in the production per capita between 2007 and 2011 was 25.02%. It is notable that although the population steadily declined, output per capita is varied. However, in those years in which the total tomato production grew, grew and production per capita, which is contradictory to the fact that the population is declining. Thus, the decline in production of tomatoes was negligible compared to the population decline. *The yield of tomatoes (kg/ha)* had the highest value in 2011 (9,800 kg/ha) and lowest in 2000 (7,600 kg/ha). The percentage decrease in the yield of tomato between 2000 and 2011 was 22.45%. These facts are contradictory, because the yield was the highest in years when production and sowing area did not have the greatest value.

Conclusion

For further functioning of the national economy in a globalized environment, it is necessary to transform the ownership of companies. In the global agricultural economy, small farms will be replaced by large farms, which will be controlled by large multinational

corporations. Small farmers simply can not compete in a free market global economy. Organizations that wish to remain competitive at the international level must establish, document, implement and maintain a quality management and continually improve its effectiveness. A number of companies in the agricultural sector of Serbia technological lags behind developed countries, so that investment in technology, the initial condition for gaining competitiveness itself on the market requirements of the above international standards. Further development of Serbia calls for a new system of development. This applies particularly to agricultural products, ie. in the production of wine. For Serbia significance is the introduction products with protected geographical origin, which is a measure of the quality of the product.

Analysis of the production of selected vegetable crops per capita indicates that production varied in some years (notably declined in the period from 2010 to 2012) and the population steadily declined. Thus, the production decline has been slower than population decline. Generally, the reduction of surface with a constant decrease in the population is proportional to each other. However, in this case, unchanged surface causes an increase in production, and run by residents who falls resulting in an increase in production per capita, which is totally paradoxical.

In the future, to improve the growth of vegetable production in total and per capita, it is essential that the Ministry of Agriculture, institutes, agencies and other relevant institutions to collect and process data, their activities more focus on small farmers and allocate more funds (premium, subsidies and other incentives) and the picture of agricultural production will be better.

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