Review Article

Economics of Agriculture 4/2012
UDC: 663/664:658.562:338.43.02

THREATS TO FOOD SECURITY AND COMMON AGRICULTURAL POLICY

Mariola Kwasek[1]

Summary

The aim of this article is presented threats to food security in the context of the CAP after 2013. The main threats to food security are (1) world population growth, (2) the increase demand for food, (3) food price, (4) the disappearance of the variety of agricultural plant species (4) the increase in the area of scarcity water and the limitation of the availability of land and (5) the food losses and food waste. In the face of numerous threats to food security, the European Union needs a strong Common Agricultural Policy, which could succeed in feeding the constantly-growing population of a world. The reformed Common Agricultural Policy should provide food security, not only for the European Union, but on a global scale.

Key words: *food security, food safety, threats, Common Agricultural Policy.*

JEL: *Q56, Q18*

Introduction

For centuries food security was interpreted as the possibility of providing food produced in a given country in full or in the majority to satisfy the demands of all inhabitants. This meaning of food security has changed, along with development of trade and international specialty. The rapid growth in worldwide food production and free international trade has enabled the countries with disadvantageous conditions to purchase the necessary food from other markets. Access to food depended on incomes, and not national production. Financial security prevailed over food security. This perspective was influenced by economists who wanted to treat food and agrarian products just like other goods, and make the volume and structure of domestic food production subordinate to market regulations and the comparative costs rule. Only the global crisis in 2007/2008 renewed the debate on food security from the household, national, regional (e.g. European Union) and global perspectives.

Food security may be achieved only with the simultaneous provision of economic and social security, as well as maintenance of domestic production at a level ensuring food accessibility and foreign trade or food reserves and the correct functioning of processing and distribution. Food security results mainly from systemic and institutional solutions in

1 Institute of Agricultural and Food Economics – National Research Institute, General Economics Department, Świętokrzyska Street 20, 00-002 Warsaw, E-mail: kwasek@ierigz.waw.pl

the fields of politics, economy and society.

The European Union, as the largest economy in the world, can play an important role in ensuring global food security in a world of limited resources. Currently, the debate over the future shape of the Common Agricultural Policy after the year 2013 is running. The issue of food security is one of many topics in this debate.

Food security

Food security is of fundamental importance for human existence. Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life[2].

Food security is ensured when the following three conditions are simultaneously satisfied:

- § Physical food availability – it means that the national food economy ensures meeting of at least the minimum physiological demand, and imports provide foods in excess of this minimum demand; the physical availability of food is linked with the need to maintain food reserves.
- § Economical food availability – it means that the economically weakest households have access to essential food (due to different types of food aid); a consumer has to have the purchasing power facilitating the purchase of the essential goods and services on the market; the purchasing power of a consumer on the food market depends on: income and food prices as well as the prices of other goods and services.
- § The health value of a single food product (food products free of any substances harmful to health, e.g. residues of pesticides, antibiotics, dioxins, and harmful colorants, as well as poisonous substances and pathogenic microorganisms) and consumer food rations (balanced food rations, e.g. the necessary energy level and the adequate proportions of nutritive components dependent on age, sex and type of work)[3].

Food safety is an integral part of food security. For the consumer, food safety is the most important feature of food quality; therefore food law regulates this issue in detail providing the consumer with the certainty that the purchased food is compliant with his safety requirements.

2 FAO (2009). *The State of Food Insecurity in the World 2009. Economic crises – impacts and lesson learned.* Rome.

3 J. Małysz (2008): *Bezpieczeństwo żywnościowe strategiczną potrzebą ludzkości,* ALMAMER, Warszawa.

Codex Alimentarius[4] plays an important role in measures ensuring the food safety and define it as *the guarantee that food shall not bring any harm to the consumer's health if it is prepared and/or consumed according to the identified purpose.*

Food affairs that have taken place at the turn of the 20-21st century, and in recent years (e.g. mad cow disease, foot-and-mouth disease, glycol in wines, dioxins in fodder and food, melamine in milk, contamination of cucumbers with mutated *E.coli* bacteria– EHEC, industrial salt used in food production) have alerted the European consumer with regards to all aspects of food quality and safety.

Raised awareness of health threats and food safety among European consumers meant that satisfying constantly-increasing expectations in this field should be one of the most important challenges faced by the agrarian production and food industry.

In the European Union, supervision and control over food safety is performed by *the Food and Veterinary Office* being a part of Directorate-General for Health and Consumers (DG SANCO). There are different supervision systems of food quality and safety in individual Member States of the European Union.

Threats to food security

The food system is bending under the intense pressure of the world population growth, increasing demand for food, in particular meat and meat products as well as milk and dairy products, scarcity water and land resources and the fight for arable land with the producers of bio-fuels, industry and urbanisation. Climate change, the vanishing of biodiversity of ecosystems and the diversity of agricultural cultivars, new plant and animal diseases, and increasing energy and food prices, the losses food and waste food, as well as speculation on the food market, will have a disadvantageous impact on global food security.

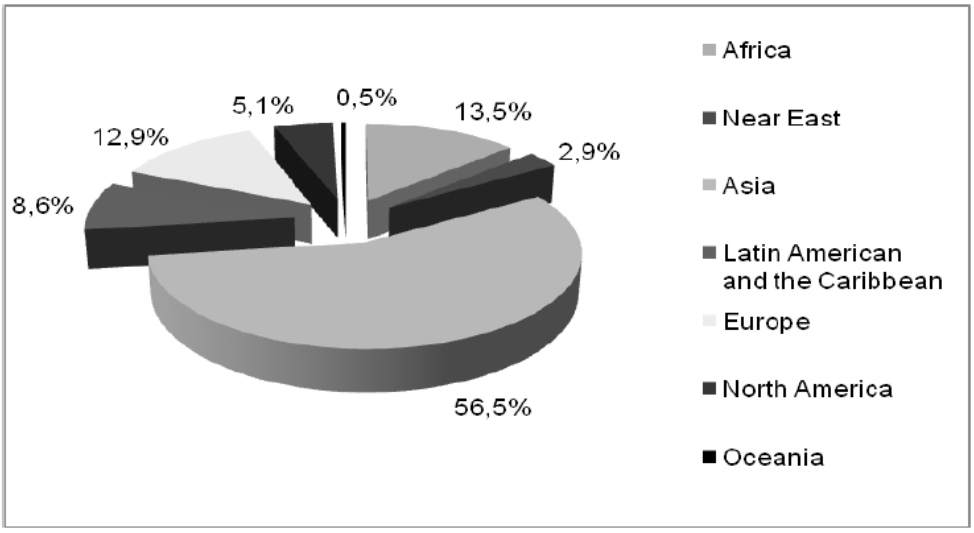
World population growth

In the last 50 years, i.e. in the years 1960-2010, the global population has increased from 3.0 to 6.8 bln people. On 11 October 2012 the world was inhabited by 7,000,976,253 people[5]. According to demographic forecasts, in 2025 the Earth will be inhabited by 7.4 bln people, and in 2050 – 9.1 bln people.

4 The Codex Alimentarius is the most important international organisation dealing with food safety, consumers' health and the ensuring of fair practices in food trading. It was founded in 1963 under the Common Programme for Food Standards established by Food and Agriculture Organisation of the United Nations – FAO, and World Health Organization – WHO.

5 www.census.gov/main/www/popclock.html

Graph 1. Distribution of the world population in 2010 (in %)



Source: International Population Reports WP/02. Global Population Profile: 2002 (2004), U.S. Government Printing Office, Washington, DC.

In 2025, the number of inhabitants of Asia will reach 4.4 bln (nearly 1.5 bln in China, and 1.4 bln in India), and 1.3 bln in Africa, including over a billion in Sub-Saharan Africa. The population of Europe will increase to 814 mln, Latin America and Caribbean up to 690 mln, North America to 388 mln, the Middle East to 280 mln, North Africa up to 211 mln, and Oceania to 40 mln[6].

The rapid growth of the world's population resulting mainly from the high birth rate in the developing countries, mostly African as well as in some countries of Asia and South America, means that feeding the population is one of the most important issues in the modern world. There are serious disproportions in the level of nutrition of the world's inhabitants resulting from the uneven distribution of food production (the largest areas of food demand are not the same as the largest areas of food production) and inadequate distribution of food, as well as improper political and institutional solutions. It should be emphasized that climate change causing droughts, floods and other disasters will have a disadvantageous impact on global food production ability[7].

The increase demand for food

Forecast increase in the world's population to over 9 billion in 2050 will result in the further growth in food demand. At present, global food production guarantees the consumption of

6 *International Population Reports WP/02. Global Population Profile: 2002* (2004), U.S. Government Printing Office, Washington, DC.

7 According to the FAO, 370 million people will be threatened with hunger at the beginning of 2150's if new land is not immediately implanted with agricultural crops.

2796 kcal daily by each inhabitant of the Earth. However due to unequal access to food, 25% of the world's population is undernourished, and 10% is starving.

The level of food consumption is strongly related to external environment (the economy). The higher the level of economic development, the higher the level of food consumption. Global economic growth results in: increased wealth of the global population, higher demand of food, and changes in consumption patterns dominated by the consumption of animal products, especially meat and meat products.

Table 1. Food consumption in China in 1983-2009 – in kg per capita/ year

Item	1983	1993	2003	2009	
					1983=100
cereals	207,9	202,7	158,0	151,4	72,8
rice	95,6	93,2	78,5	76,3	79,8
wheat	73,2	82,4	61,4	66,4	90,7
maize	24,3	20,2	15,3	6,8	28,0
starchy roots	83,9	61,7	74,5	65,2	77,7
vegetables	66,2	128,0	270,5	321,5	485,6
fruits	9,4	24,2	49,7	72,3	769,1
sugar (raw equivalent)	5,7	5,3	7,6	5,9	103,5
meat	16,2	33,5	54,8	58,2	359,3
bovine meat	0,4	1,9	4,9	4,8	1200,0
pig meat	13,3	24,6	35,3	36,7	275,9
poultry meat	1,9	5,5	10,9	12,6	663,2
mutton & goat meat	0,5	1,2	2,8	2,9	580,0
fish, seafood	5,8	15,4	25,4	31,0	534,5
milk – excluding butter	3,8	6,6	16,6	29,8	784,2
eggs	3,0	9,2	18,3	18,5	616,7
fats	4,9	7,6	13,7	11,1	226,5
animal	0,9	1,6	2,4	2,2	244,4
vegetables oils	4,0	6,0	11,3	8,9	222,5

Source: FAOSTAT.

The exact functioning of this mechanism is illustrated by an example the Chinese getting rich. In 1983-2009, an increase in the consumption of the majority of food products was observed in China (tab. 1). The consumption of vegetables was the highest (nearly 5 times higher – up to the level of 321,5 kg per capita/year), and fruit (over 7 times higher – up to the level of 72,3 kg per capita/year). In the group of animal products, the highest consumption was related to meat (3.6 higher – up to 58,2 kg per capita/year), fish and seafood (over 5,3 times more – up to the level 31 kg) and milk and diary products (over 7.8 times higher – up to the level 29,8 kg.

The growth of wealth in developing countries will result in increase demand for food, including animal products. The higher demand for animal products is particularly disturbing, because for every ton produced of meat falls to 20 tons of fodder, based mainly on cereals meat. If global meat consumption is not reduced in the next several decades, we shall be faced

with a global food crisis threatening food security[8]. The World Bank forecasts that global demand for food will rise by 50% and for meat by 85%, by 2030[9].

Food prices

Global food crisis that began with the sudden increase in food prices all over the world at turn of 2007/ 2008 resulted in an increase in the costs of food product imports (especially in developing countries dependent on import), and had catastrophic effects on the household budgets. The increase in prices is being felt the most by the millions of the poorest people. It is estimated that global food prices can increase by 70-90% by the year 2030, and that's without calculating the impact of climate change, which could cause prices to double[10].

The food crisis played its part in the increase in the number of undernourished people all over the world. In 2009, the number of undernourished people exceeded 1 billion[11]. Why is it then that in a world where enough food is produced to feed all its inhabitants, one person out of 7 suffers hunger? Such a large number of undernourished people are blighting the hope of reaching the first of the Millennium Development Goals – *eliminating extreme poverty and hunger*.

Table 2. Number of people undernourished in the world (1990-1992 to 2010-2012)

Item	Number of people undernourished (millions)				Proportion of undernourished in total population (%)			
	1990-1992	2004-2006	2007-2009	2010-2012*	1990-1992	2004-2006	2007-2009	2010-2012*
World	1000	898	867	868	18,6	13,8	12,9	12,5
Developed countries	20	13	15	16	1,9	1,2	1,3	1,4
Developing countries	980	885	852	852	23,2	16,8	15,5	14,9
Asia	739	620	581	563	23,7	16,3	14,8	13,9
Southern Asia	327	323	311	304	26,8	20,4	18,8	17,6
Western Asia	8	16	18	21	6,6	8,8	9,4	10,1
Africa	175	210	220	239	27,3	23,1	22,6	22,9

8 U. Świerczyńska (2008): *Przyczyny światowego kryzysu żywnościowego oraz jego wpływ na najbiedniejsze kraje świata* [w:] *Globalne ocieplenie i kryzys żywnościowy*. Fundacja Polskie Centrum Pomocy Międzynarodowej, Warszawa.

9 A. Evans (2009): *The Feeding of the Nine Billion. Global Food Security for the 21st Century*. Chatham House, London.

10 *Growing a Better Future, Food justice in a resource – constrained world* (2011), Oxfam International.

11 FAO (2010): *The State of Food Insecurity in the World 2010, Addressing food insecurity in protracted crises,* Rome.

Item	Number of people undernourished (millions)				Proportion of undernourished in total population (%)			
	1990-1992	2004-2006	2007-2009	2010-2012*	1990-1992	2004-2006	2007-2009	2010-2012*
Sub-Saharan Africa	170	205	216	234	32,8	27,2	26,5	26,8
Northern Africa	5	5	4	4	3,8	3,1	2,7	2,7
Latin America and Caribbean	65	54	50	49	14,6	9,7	8,7	8,3
Oceania	1	1	1	1	13,6	13,7	11,9	12,1

Source: FAO (2012): *The State of Food Insecurity in the World. Economic growth is necessary but not sufficient to accelerate reduction of hunger and malnutrition.* Rome.

* projections

On one hand, there is the growing number of undernourished people, while on the other, the obese, whose number is estimated at around a billion. The worldwide problem of obesity is connected not only with changes in lifestyle (sedentary way of living, improper dietary habits, low physical activity, stress), but also with the increase in food prices and its correlation to nutritive value of food and production costs[12].

The disappearance of the variety of agricultural plant species

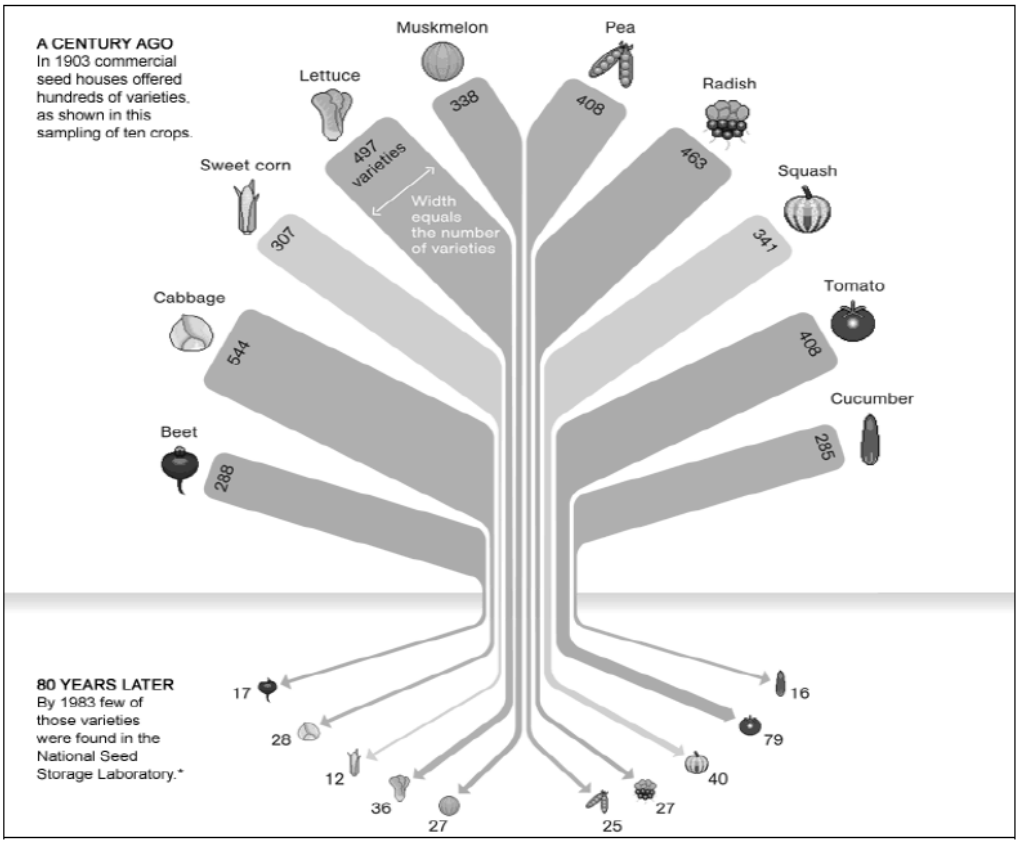
Biodiversity in agriculture includes, in addition to natural habitats and wild species of plants and animals, including genetic resources for agriculture, which consists of local crop varieties and livestock breeds.

Diversification of agriculture is the only and most important method of achieving food security in a changing climate. The greater number of species and varieties in one field or in a single ecosystem, the greater the likelihood that some of them can cope with changes in the environment. The diversity of species also decreases the probability of occurrence of diseases and pests, reducing the number of organisms-hosts on which they could develop[13].

12 A. Drewnowski (2010): *The cost of US foods as related to their nutritive value,* Journal of Clinical Nutrition, 92(5).

13 J. Cotter, R. Tirado (2008): *Food Security and Climate Change: The answer is biodiversity,* Greenpeace, United Kingdom.

Figure 1. The declining diversity of agriculture varieties



Source: Giovannucci D., Scherr S., Nierenberg D., Hebebrand Ch., Shapiro J., Milder J., Wheeler K. (2012): *Food and Agriculture: the future of sustainability, A strategic input to the Sustainable Development in the 21st Century (SD21) project,* New York.

The increase in the area of scarcity water and the limitation of the availability of land

Water is one of the most important factors deciding the fate of a human being. Water resources all over the world are estimated to be at around 1 387 mln km^3. Salt water constitutes 97% of water resources all over the world, while fresh water constitutes only 3%. 69% of fresh water is stored in glaciers and icecaps, while 30% is stored underground (ground water). This means that the available drinking water constitutes only 1% of global water resources.

Water resources are decreasing in many countries due to climate changes. The amount of water allotted to 1 person is 0.23 km^3. According to the World Water Development Report, during the next 20 years, the average amount of water allotted to 1 person will decrease by 1/3.

The demand for water is growing at an alarming rate due to the larger number of people in the world. The increase in the demand for water is also a result of changes in consumption patterns, as well as increases in energy production, especially biofuels. The most water is used by the inhabitants of Asia, where the population is growing at the quickest rate. For example, a Chinese inhabitant in 1961 consumed only 4 kg of meat and meat products per capita/year, in 1983 – 16 kg, while in 2009 as much as 58 kg. It is important to note that the production of 1 kg of beef requires 15 500 litres of water, 1 kg of poultry – 3 900 litres, 1 kg of eggs – 3 300 litres, and 1 kg of wheat – 1 300 litres[14].

According to the FAO, the main factor limiting the increase in the production of food all over the world is water. Agriculture utilises 70% of global resources of fresh water, and climate changes further aggravate this problem.

A significant increase in demand for food must be met based on the diminishing resources will not only water but also land. Due to the of soil erosion, depletion of nutrients, infrastructure development and urbanization of agricultural land area is decreasing. With so much population growth projected to 2050 will need it to feed on smaller and smaller area of agricultural land.

The projected level of agricultural land in 2030 will amount to less than 0.22 ha/person (now an inhabitant of 0.27 ha). The increase in agricultural production must therefore result from improvements in productivity.

The food losses and food waste

Food losses and waste of food are two different issues. Food losses occur primarily in the low-income countries as a result of the lack of adequate infrastructure. Food losses occur mainly at the production stage, and looses at the stage of consumption are much smaller. Production and inadequate storage generates approximately 40% losses of food.

Roughly one-third of the edible parts of food produced for human consumption gets lost or wasted globally, which is about 1.3 billion ton per year. Per capita food wasted by consumers in Europe and North-America is 95-115 kg/year, while in Sub-Saharan Africa and South and South-East Asia is only 6-11 kg/year[15].

In connection with such a huge waste of food you should take any steps to reduce it. A good solution is to campaigns, which may contribute to changes in consumer behaviour. One of them, under the slogan "Do not waste food. Think organic", was conducted by the Federation of Polish Food Banks in 2012. Limitation of food waste will increase the efficiency of land use, improved water management, the assurance of benefits for the whole sector of the agriculture in the world on a global scale, and to reduce undernourished in developing countries.

14 *Growing a Better Future. Food justice in a resource – constrained world* (2011): Oxfam International.

15 FAO (2011): *Global Food Losses and Food Waste,* Rome.

The Common Food Policy after 2013 and food security issues

The Common Food Policy is one of the key policies of the European Union, which is constantly evolving. Just fifty years ago its main goal was the guarantee of the necessary amount of food for the European inhabitants struggling with the post-war food shortage. That goal was achieved. However, its side-effect was the overproduction of food.

In the nineties of XX century, one of the most important aims of the Common Agricultural Policy was the elimination of the production surplus and the increase in the quality of agricultural and food products, as well as environmental protection. The causes of the divergence from intensive agriculture to the multi-functional development of the rural areas were, among others, (1) the overproduction of food, (2) the degradation of the natural environment caused by chemisation and mechanisation of agriculture, (3) the depopulation of rural areas, and (4) the crisis caused by mad-cow disease. The counteraction against those trends was included in the Maastricht Treaty of 1992, in which the European Union adopted regulations promoting the production of high-quality food rooted in the environment and tradition.

Currently, the main aim of the Common Agricultural Policy is not only providing enough food, but also the high-quality food produced in a sustainable manner and in accordance with the requirements in the fields of environmental protection, water resources, the health and well-being of animals, the health of plants and public health, all of which simultaneously guarantee stable agricultural incomes.

The Common Agricultural Policy, with a perspective reaching the year 2020, will be directed towards raising the competitiveness of European agriculture and the guarantee of food security, simultaneously promoting high-quality food products, environmental protection and the development of rural areas.

Food security is becoming a more prominently raised topic during the discussion on the future of the CAP. This is shown by the Resolution of the European Parliament of 18 January 2011 on recognising agriculture as a strategic sector in the context of food security[16]. The Resolution states that, among others:

- § The right to food security is a basic human right and the European Union has a duty to feed its inhabitants.
- § The guaranteeing an adequate supply of food is an essential component of food security.
- § Supports the formula Food Security – Nutrition – Quality – Proximity – Innovation – Productivity; believes that in order to achieve this the future CAP should take note of the public expectations that it should be both an agricultural and a food policy geared to providing public information about a healthy diet (for example, the realisation of nutrition programmes such as School Fruit and School Milk in the Member States).
- § The increased drive to develop renewable energy sources must take into account the

16 The Resolution of the European Parliament of 18 January 2011 on the recognition of agriculture as a strategic sector in the context of food security (2010/2112(INI)).

impact on food production and supply.

§ The productivity gains that will be made in the new Member States will increase the amount of land available land and will provide an opportunity to boost the production of proteins and oleaginous products in the EU.

§ The food from third countries which entering the EU must meet the same high standards, so that European producers do not suffer in terms of competitiveness.

In the face of numerous dangers to food security, the European Union needs a strong CAP, which could succeed in feeding the constantly-growing population of a world with limited water and land resources.

The reformed Common Agricultural Policy should provide food security, not only for the European Union, but on a global scale. The most important challenges for the Common Agricultural Policy are:

§ assurance of the continuity of agricultural production in the whole of the EU;

§ assurance of the coexistence of different agricultural models, including small-scale agriculture, which is suitable for the creation of jobs in the rural areas of the European Union, ecological agriculture and sustainable agriculture;

§ taking into account the expectations of the European consumers in the matter of quality and food security;

§ assurance of the clearance of the whole agriculture and food chain, so that consumers can have access to reliable information as to where the food they consume has been produced, what ingredients it contains and how it was produced,

§ creation of a new food-quality policy, which will have a significant impact on sustainable and competitive European agriculture;

§ support of agricultural producers who want to meet the challenges in the area of food quality through participation in food-quality systems, both at the European Union and national levels;

§ encouragement of farmers to convert to a management system in which support is not connected with the amount of food, but with its quality;

§ production, protection and promotion of high-quality food;

§ support of promotional and informative actions directed towards both food producers and consumers;

§ protection of the natural environment;

§ health care and decent conditions of animal husbandry;

§ organic food production;

§ promotion of healthy food consumption patterns, which would result in the improvement in the health of the inhabitants of the European Union;

§ to provide nutrition education and health, especially in children;

§ the reduce food waste.

Conclusion

In a situation where the global population is growing, as is the global demand for food, the European Union, as the largest economy and the biggest assistance provider in the world, may help satisfy that demand. Therefore it is crucial to maintain and improve the agricultural production capability of the EU and, at the same time, respect the obligations of the European Union arising from international trade agreements and policy coherence for development. A strong agricultural sector is necessary for a competitive food industry.

The agriculture of the European Union will not only have to provide more food, but also improve food quality in conditions of aggravating climate changes (droughts, floods), the decreased availability of water and land, the disappearance of biodiversity, new plant and animal diseases, increasing speculation on the markets of agricultural resources, the growing disproportions in the rate of the natural population growth on the global scale and the growing requirements of consumers in the area of food safety and food security.

The pursuit of higher quality constitutes an important element of the strategy of the agriculture and food sector of the EU on the global market, in order to maintain the high level of competitiveness. High-quality European food is the main principle of the agriculture of the European Union and plays a key role in the creation of the cultural identity of countries and regions.

The priority of the Common Agricultural Policy should be the improvement in the efficiency of agriculture in the EU, while simultaneously improving environmental standards. In this manner the European Union will guarantee the food self-sufficiency and increase its input into global food security.

References

1. Cotter, J., Tirado, R. (2008): *Food Security and Climate Change: The answer is biodiversity,* Greenpeace, United Kingdom.
2. Drewnowski, A. (2010): *The cost of US foods as related to their nutritive value,* Journal of Clinical Nutrition, 92(5).
3. Evans, A. (2009): *The Feeding of the Nine Billion. Global Food Security for the 21st Century.* Chatham House, London.
4. FAO (2012): *The State of Food Insecurity in the World. Economic growth is necessary but not sufficient to accelerate reduction of hunger and malnutrition.* Rome.
5. FAO (2011): *Global Food Losses and Food Waste.* Rome.
6. FAO (2010): *The State of Food Insecurity in the world. Addressing food insecurity in protracted crises.* Rome.
7. FAO (2009): *The State of Food Insecurity In the World 2009. Economic crises – impacts and lesson learned*. Rome.
8. Giovannucci, D., Scherr, S., Nierenberg, D., Hebebrand, Ch., Shapiro, J., Milder, J.,

Wheeler, K. (2012): *Food and Agriculture: the future of sustainability. A strategic input to the Sustainable Development in the 21st Century (SD21) project*. New York.

9. *Growing a Better Future. Food justice in a resource – constrained world* (2011), Oxfam International.
10. *International Population Reports WP/02. Global Population Profile: 2002* (2004), U.S. Government Printing Office, Washington, DC.
11. Małysz, J. (2008): *Bezpieczeństwo żywnościowe strategiczną potrzebą ludzkości*. ALMAMER, Warszawa.
12. Świerczyńska, U. (2008): *Przyczyny światowego kryzysu żywnościowego oraz jego wpływ na najbiedniejsze kraje świata* [w:] *Globalne ocieplenie i kryzys żywnościowy*. Fundacja Polskie Centrum Pomocy Międzynarodowej, Warszawa.
13. The Resolution of the European Parliament of 18 January 2011 on the recognition of agriculture as a strategic sector in the context of food security (2010/2112(INI)).
14. www.census.gov/main/www/popclock.html
15. www.faostat.fao.org/site/368/default.aspx#ancor

UDC 338.43:63 **ISSN 0352-3462**

ECONOMICS OF AGRICULTURE

CONTENT

1. Biberdžić Milan, Maksimović Goran, Barać Saša, Jovović Zoran
ECONOMIC EFFECTS OF TRITICALE PRODUCTION ON ACID SOILS 579

2. Nešković Slobodan
AN AGRICULTURAL PRODUCTION AS A SIGNFICANT AREA OF A STATEGY OF ECONOMY DIPLOMACY OF SERBIA 589

3. Prentović Risto, Gačić Dragan, Cvijanović Drago
AGRICULTURAL LAND IN VOJVODINA AS ROE DEER HABITAT - HUNTING - TOURISM ASPECT 603

4. Stevanović Simo, Đorović Milutin, Milanović Milan
THE DEVELOPMENT OF THE MARKET PRODUCTION OF CEREALS IN SERBIA: EXAMPLE WHEAT AND CORN 617

5. Ševarlić Miladin, Raičević Vuk, Glomazić Rade
SUSTAINABLE AGRICULTURE POLICY IN SUPPORT OF FARMERS' COOPERATIVE SYSTEM 633

6. Zekić Vladislav, Tomović Vladimir, Milić Dragan, Lukač Dragomir
COMPARISON OF ECONOMIC CHARACTERISTICS OF PORKERS OF MANGALITSA AND YORKSHIRE RACE 649

7. Fabris Nikola, Pejović Igor
MONTENEGRIN AGRICULTURE: DIAGNOSIS AND POLICY RECOMMENDATIONS. 657

8. Janković Dejan
TERRITORIAL APPROACH TO REGIONAL RURAL DEVELOPMENT 675

9. Krstić Snežana, Vukša Slavko, Andžić Slobodan
THE ROLE OF THE NATIONAL BANK IN CREATION OF PUBLIC DEBT OF INDEPENDENT KINGDOM OF SERBIA 687

10. Kwasek Mariola
THREATS TO FOOD SECURITY AND COMMON AGRICULTURAL POLICY 701

11. Lukač Bulatović Mirjana, Rajić Zoran, Ljubanović Ralević Ivana
ECONOMIC FEATURES OF PROCESSED FRUIT PRODUCTION IN SERBIA 715

12. Nikezić Srđan, Bataveljić Dragan, Matić Milutin
DEVELOPMENT INITIATIVE OF MANUFACTURING AND SERVICE CLUSTERS IN THE REPUBLIC OF SERBIA CORRIDOR 10 ZONE. . . . 727

13. Rusali Mirela
EU ACCESSION IMPACTS ON THE COMPARATIVE ADVANTAGES IN AGRICULTURAL TRADE: ROMANIA'S CASE 747

14. Savić Ljubodrag, Bošković Gorica, Mićić Vladimir
ASSUMPTIONS AND POSSIBILITIES OF THE DEVELOPMENT OF THE SERBIAN FOOD INDUSTRY 753

15. Stojanović Žaklina, Gligorijević Mirjana, Rakonjac Antić Tatjana
THE ROLE OF THE MARKETING MIX IN THE IMPROVEMENT OF AGRICULTURAL INSURANCE 769

16. Subić Jonel, Jovanović Marijana, Potrebić Velibor
EVALUATION OF REALIZED INVESTMENTS IN AGRICULTURE IN AREA OF UPPER DANUBE REGION 781

17. Subošić Dane, Cvetković Dragan, Vuković Slaviša
FORMS OF ENVIRONMENTAL CRIME IN AGRIBUSINESS. 793

18. Zakić Vladimir, Vasiljević Zorica, Zarić Vlade
RELEVANCE OF DIVIDEND POLICY FOR FOOD INDUSTRY CORPORATIONS IN SERBIA 809

19. **ZAKLJUČCI SA MEĐUNARODNOG NAUČNOG SKUPA „ODRŽIVA POLJOPRIVREDA I RURALNI RAZVOJ U FUNKCIJI OSTVARIVANJA STRATEŠKIH CILJEVA REPUBLIKE SRBIJE U OKVIRU DUNAVSKOG REGIONA - očuvanje ruralnih vrednosti". . . . 823**

20. **Prikaz monografije**
LAVIRINTI MENADŽMENTA 827

21. **Zapisnik sa V sednice Skupštine Naučnog društva agrarnih ekonomista Balkana (NDAEB) 829**