“Institutional support for the organic farming development – a conceptual framework”

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INSTITUTIONAL SUPPORT FOR THE ORGANIC FARMING DEVELOPMENT – A CONCEPTUAL FRAMEWORK

Abstract

Realization of agricultural production complying with the sustainable development principles has resulted in a separate direction – organic farming. Its big difference from all other economy sectors is in its dependence on the natural and climatic conditions. Therefore, agricultural production has a dual nature, namely it depends on the environment health on the one hand, and, on the other hand, directly affects this health through the use of technologies that can both improve and substantially worsen the environmental situation. The institutional support for the organic farming is of great importance. This issue is relevant for scientists from countries, where organic farming is actively developing. In Ukraine, this is also a topical issue. The paper presents a conceptual framework of institutional support for the organic farming development, which includes elements such as state regulation, self-regulation, objects and subjects of organic farming, as well as an organic product market. Legal, informational, infrastructure and financial directions of ensuring the development of organic farming are also defined. The essence of each element is revealed. The main indicators of the organic farming development in Ukraine are analyzed, i.e. the organic farming areas, their proportion in agricultural lands, the number of producers, the volume of the organic market, the volume of organic consumption per capita, as well as the share of domestic organic land in the world's territory. A correlation analysis based on data from the largest world market of the USA made it possible to determine the factors that have the greatest impact on the development of the organic agricultural sector. The number of organic producers is statistically significant, and the share of land in the organic farming does not have a significant impact on the organic product consumption. At the same time, this can be seen from the point of view that the more producers will offer their products, the more saturated the market will be, and therefore the level of the organic products coverage can be greater.

Keywords sustainable development, organic farming, agricultural development, organic markets, developing countries

JEL Classification Q01, Q13, Q15, Q57

INTRODUCTION

The agrarian sector is a component of the socio-economic agrobiology system of nature and society, which is vulnerable and performs diversified functions, namely life support (production of agro-food and raw materials), human life support (employment, conditions and quality of life of economic actors, rural population, and people in general), life facilities (developing the territorial living environment). Efficient implementation of these diverse functions by the agrarian sphere is possible only subject to sustainable development-based functioning. It should be noted that agricultural production combined with agro-landscape and labor resources form the agrarian sector of the country. Directing development measures according to the selected components ensures the systematic and sustainable functioning of the agrarian sphere.

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Implementation of agricultural production in compliance with the principles of sustainable development has resulted in a separate direction – organic farming. Its significant difference from all other sectors of the economy is in its dependence on the natural and climatic conditions. Therefore, agricultural production has a dual nature, namely it depends on the environment health on the one hand, and, on the other, directly affects this health through the use of technologies that can both improve and worsen the environmental situation to a significant extent. One can fully agree with Kobets, Kharytonov, Hrytsan, and Zhukov (2015), the researchers from the Dnipro State Agrarian and Economic University, who state that the diversity of climatic, soil, orographic conditions of agriculture and far from being equally weighted financial opportunities make it possible to fully realize the appropriateness of the multivariate development of agrarian enterprises. The use of organic agrotechnology of management can serve as a bailout plan.

1. LITERATURE REVIEW

The number of studies on the status and role of organic farming is getting more and more over the years. So Valéria da Veiga Dias, Glauco Schultz, Marcelo da Silva Schuster, Edson Talamini, and Jean Philippe Révillion (2015) analyzed the Web of Science database publications. They found and tried to analyze 196 articles dealing with the problem of the of organic market functioning. The authors emphasize that despite more than 20-year life-span of organic technologies, the market for organic products is only at its forming stage. Complex institutional support for the development of natural farming is of particular importance for the further development of organic production. Larsson, Morin, Hahn and Sandahl (2013) identified six basic steps for institutional development: 1) establishment of an organic community, 2) establishment of political recognition, 3) establishment of financial support, 4) development of non-competitive relationships, 5) establishment of organic food market, and 6) development of a committed institutional setting. Cocka, Dessein, and Krom (2016), using the organic production in Belgium as an example, studied political and institutional changes, their positive effects, as well as the reasons why all the changes introduced did not achieve the expected result. It is indicated that for the effective promotion of organic production it is necessary to have support from all interested persons, including from different regions of the country and between different countries. Targeted development programs are also needed. In addition, it is expedient to broaden the scope of stakeholders and to involve advisory services, research and educational institutions, food producers, etc. in the development of organic production policy.

It is worth noting that organic production is an integrated system and it is very effective provided its qualitative organization. And here the institutional support for its development plays an important role. This support should create conditions in a complex way both at the national and subnational and micro levels, through state regulation and self-regulation. It also should provide the legal, informational, infrastructural and financial bases for further development. According to Niggli, Schader, and Stolze (2010), "Cost effectiveness of organic farming support can result from consistency of the policy measure, the system approach of organic farming and resulting synergetic environmental effects, as well as increased market values and lower transaction costs". The authors also stated that "Policy instruments are evaluated against the criteria of 'environmental effectiveness' and 'economic efficiency'. While effectiveness requires that the policy instrument is able to deliver effects that help to meet policy targets, efficiency ensures that the targets are met at lowest cost".

In the EU, agricultural production is a very complex and dynamic system though unsustainable, and the problem cannot be solved only with the help of state financial support. First of all, the decision is precisely in the institutional plane of the informational support, in the explanatory work which will contribute to increase demand for organic products (Brzezina, Biely, Helfgott, Kopainsky, Vervoort, & Mathijs, 2017). Palšová, Schwarczová, Schwarcza, and Bandlerová (2014), using the Slovak Republic as an example, noted that the country has good natural environment for the organic production development, but among other factors (namely social and psycho-

logical, normative and institutional, financial and economic), the economic ones play an important role.

Research on the problems of introducing organic farming in Ukraine is mostly fragmented and usually relates to individual problems. Among the works devoted to this issue is those by Bazylevych, Kupalova, Goncharenko, Murovana, and Grynchuk (2017), concerning the development of organic production in Ukraine and its role in the implementation of the sustainable development concept in the country.

Ton (2013) emphasized the significance of the institutional support for organic farming and stated that institutional arrangements between organic farming participants are critical for improving the operating efficiency and product quality. Meena R. P., Meena H. P., and Meena R. S. (2013) define the basic components of organic agricultural production and describe their characteristics. Seufert (2013) places greater focus on developing a policy that would comprehensively address the issue of organic farming development. The author considers the issue in terms of internationalization of this process. In particular, she notes that "This policy brief concludes that organic agriculture can provide important contributions to sustainable agricultural development. To get the most out of an organic agriculture strategy, CIDA should: 1) contribute to capacity building of organic farmer cooperatives; 2) promote the development and integration of organic markets; 3) help in developing domestic organic markets; 4) support the development of participatory guarantee systems (PGS); 5) concentrate policies on countries and regions where organic agriculture has the most potential; 6) support research on organic agriculture in developing countries".

State regulation is an essential component of the institutional support for organic farming, and it is carried out in various directions. This is described in detail by Padel and Lampkin (2007) in the monograph "Organic Farming: An International History". In the same study, Schmid (2007) focuses on the development of standards in this area and states that "There is a need to reflect more about public-private partnerships in the harmonization and implementation of the rules of organic farming on a worldwide as well as on a national level. The ongoing process of cooperation among IFOAM, Codex Alimentarius and UNCTAD in the harmonization of standards is important, but should always focus on the overall aims of organic farming, and not lead to even more bureaucracy".

2. THEORETICAL BASIS

Currently, not only scientific research in the field of organic farming continues, but also the organic product market is dynamic in Ukraine, new producers appear. Dnipro and Poltava regions have long-term experience in organic farming. Agroecology is a well-known private enterprise, which was founded and headed by Antonets S. S. for a long time (2015). It is one of the first companies to introduce the technology of organic farming, and according to Antonets, the purpose of organic farming is to model the natural processes of fertility reproduction in the process of agricultural products cultivation. Technological measures should help to accumulate the maximum of organic matter in the top soil; to prevent the destruction of micro-channels formed by the roots of plants and soil biota; to maintain capillarity and increase the microbiological activity of the soil; to give the opportunity to accumulate and rationally use moisture; to optimize mineral nutrition of plants, conditions of soil microorganisms' vital activity; to help preserve the structure of the soil, bringing it as close as possible to the natural one; to ensure the preservation and increase of soil fertility and its protection against erosion, to reduce the risk of crust formation.

In general, organic farming is based on the following basic principles:

- soil cultivation without turning the arable layer, the depth of cultivation should not exceed 11 cm;
- refusal to use mineral fertilizers;
- refusal to use chemical plant protection products;
- use of enzyme products and effective microorganisms in agriculture (EM-products);

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- use of green manures;
- scientifically based crop rotation;
- the inviolability of the biological balance in nature;
- environmental safety.

It should also be emphasized that there are a number of regulatory documents of the world and European level which define "organic farming" or "organic agriculture". According to the International Federation of Organic Agriculture Movements (IFOAM), organic farming is a production system that supports the health of soils, ecosystems and people. It depends on ecological processes, biological diversity and natural cycles that are specific to local conditions. At the same time, the use of harmful resources causing adverse effects is avoided. Organic farming combines traditions, innovation and science to improve the environment and promote the development of fair relationships and a decent standard of living for all of the above. EU Council Regulation No. 834/2007 as of June 28, 2007 gives the similar definition of the organic farming and labeling: "Organic production is an integrated system for managing and producing food products, which combines best practices in view of conservation of the environment, biodiversity, conservation of natural resources, application of high standards of proper maintenance (animal welfare and production method that meets certain requirements for products made with the use of substances and processes of natural origin" (Council of the European Union, n. d.).

The Law of Ukraine "On basic principles and requirements for the organic production, circulation and labeling of organic products" (The Verkhovna Rada of Ukraine, 2018) adopted in July 2018, takes great importance in the development of organic agricultural production. Despite the fact that it will come into force as from August 2, 2019, it establishes legal principles for the operation of not only organic producers, but also their certification and circulation. This law provides opportunities, including for the implementation of programs of financial support from the state, at the expense of the state and local budgets to support the development of organic agricultural production. According to Article 1 of this Law, organic production is certified activity related to the production of agricultural products (including all stages of the process, namely primary production (including harvesting), preparation, manufacturing, mixing and associated procedures, filling, packaging, processing, restoration and other changes in the status of products). This activity is carried out in compliance with legal requirements in the field of organic production, circulation and labeling of organic products" (The Verkhovna Rada of Ukraine, 2018).

We believe that the institutional support for the organic farming development is a set of legislative, informational, infrastructural and financial measures carried out by regulating subjects and institutions at the national, subnational and micro levels, with the purpose of dynamic development of organic farming and achievement of the socio-ecological and economic effect.

In our view, ensuring the development of organic agricultural production requires coordinated actions between natural agricultural producers and organic product market, as well as between state regulation and self-regulation bodies to promote organic products to the final consumer. This will achieve the basic goals of sustainable development, namely maintaining the appropriate health of people, biodiversity conservation, reduction of environmental pollution, nutritional needs, improving the quality of drinking water and the reservoir condition, etc.

The basic elements of the concept of institutional support for the of organic farming development are shown in Figure 1. In this context, it is possible to distinguish between three key blocks: 1) the organic farming control unit, 2) the organic products market block, and 3) the block defining the main directions for further development of organic farming in Ukraine.

In terms of the first block, it should be noted that regulation should be divided into two components: state regulation, the so-called rigid legislation, and self-regulation, i.e. soft legislation. As for the first component, it should be noted that Ukraine has currently adopted two basic legisla-

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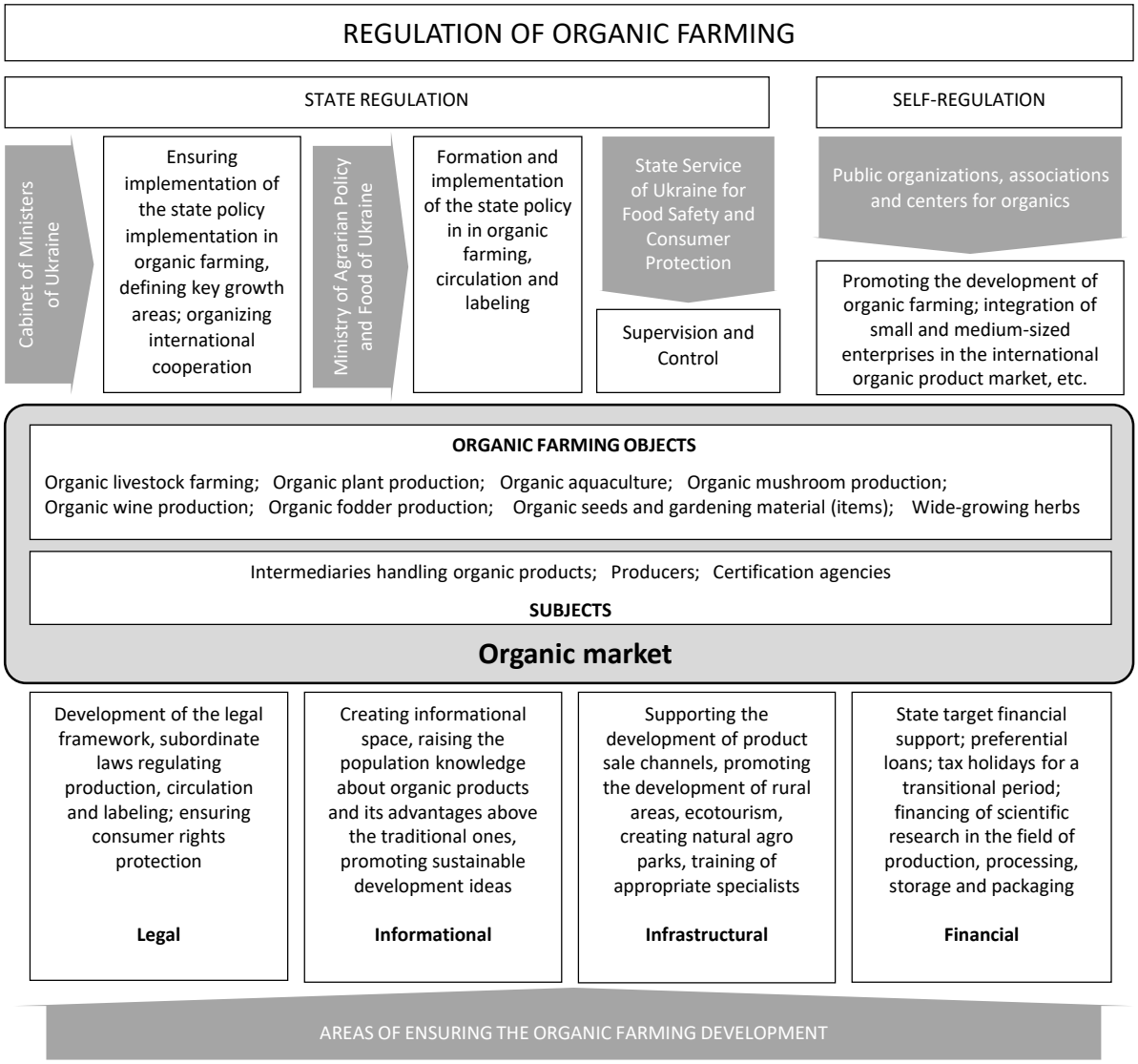

Figure 1. A Conceptual framework of the institutional support for organic farming development

tive documents, namely, the Law of Ukraine dated September 3, 2013 No. 425-VII "On the production and circulation of organic agricultural products and raw materials" and the Law of Ukraine as of July 10, 2018, No. 2496-VIII "On basic principles and requirements for organic production, circulation and labeling of organic products". With the entry into force of the last law on August 2, 2019, the Law of Ukraine "On the production and circulation of organic agricultural products and raw materials" which is currently in force will expire. It is worth noting that the new law is more detailed and meets European requirements for organic products, their production and all stages of advancement to consumers. As of the beginning of 2017, 87 countries of the world out of 179 have certified organic agricultural production and have legislation in this area.

As for the self-regulation, soft legislation unlike legal one has long existed in Ukraine and is actively developing and contributing significantly to the promotion of organic farming.

Public organizations, associations are actively developing in Ukraine, as well as international projects aimed at promoting the idea of organic agro production. The Organic Federation of Ukraine, which was established in 2005, plays an important role. The main goal of the Federation

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is to extensively promote values and standpoint inherent to the supporters of the world organic movement, to increase the efficiency of agricultural production while simultaneously developing modern world and domestic technologies that are safe for nature and human, and to promote the development of organic movement in Ukraine, including not only directly to the production, processing and export of organic products, but also to the formation of the domestic consumption market (Organic Federation of Ukraine, n. d.). More than 200 legal and natural persons, public organizations are members of the Federation. It unites market operators (direct producers and intermediaries that handle organic products), certification bodies, institutions of higher education and research institutions of the Ukrainian Academy of Agrarian Sciences, etc. The Federation primarily provides information support, namely providing services for obtaining the necessary information on organic production; consultations on systems, basic requirements, rules of conducting organic farming. In addition, various seminars, round tables are organized and held. Also, support is provided for the promotion of international space through the participation in international conferences, seminars and specialized exhibitions.

QueS Consultancy Body plays an important role in promoting organic products to the international market. This is the main exhibitor and represents the National Pavilion at BioFax which is one of the largest international exhibitions of organic products. It provides specialized support to private companies, development projects and state institutions for the development of the organic market, certification schemes, trading instruments and business relations" (QueS Consultancy Body, n. d.).

The Ukrainian Organic Cluster is a public association, actively promoting the idea of organic farming and bringing together 19 participants. These are mainly organic farming market operators. The purpose is the consolidated development of the Ukrainian organic sector, the preservation of national identity and the enhancement of the participant competitiveness through the combining business, science and government efforts (Ukrainian Organic Cluster, n. d.).

Equally important is the development of the Centers for Organic Farming. In particular, such a center exists in Dnipropetrovsk, Poltava, Kharkiv, and Zaporizhzhia regions. According to the IFOAM, as of the beginning of 2018, the key players in the organic market of Ukraine, in addition to the above, are: Green Dossier Information Center, Organic Ukraine – Certified Organic Producers' Union, Institute for Organic Production, International Public Association BIOLan Ukraine, Sib-Agro, Natur Boutique and others.

According to the current legislation, all the organic market players are divided into operators, which include directly producers, and intermediaries, engaged in the circulation of organic products. In Ukraine, by the end of 2016, according to the IFOAM, there are 426 organic market operators, of which 294 are organic producers, compared with 31 operators at the beginning of 2002, when statistical information began to emerge. During this period, the number of operators is growing at a fairly steady pace from year to year. It should be noted that as of the beginning of 2016, there were 30 exporters and 50 importers of organic products. In the whole world, the number of operators amounted to 2.7 million at the beginning of 2017.

A for the objects of organic farming, in the domestic legislation, in fact, all branches of agriculture are separated, namely: crop, livestock, winemaking, fodder production, mushroom growing, wide-growing herbs, aquaculture, seeds and gardening material. The analysis of the annual reports of the International Federation of Organic Agriculture Movements allows us to draw the following conclusions.

1. In Ukraine, organic crop production is actively developing. Currently, Ukraine occupies the 20th position in the world in terms of organic land with a total area of 381,173 hectares, of which 91,622 hectares are transitional land. However, in relative terms it is only 0.9% agricultural land, and by this indicator, Ukraine occupies 70th place among countries that carry out organic farming. A significant factor that can be used to increase the presence of Ukraine in the world organic product market is the bank of land turned to wild-growing herbs, which is 550 thousand hectares.

2. The main products exported to the European market, which is the basic one for domestic commodity producers, are cereals, oilseeds and bean cultures, wild-growing herbs, mushrooms and medical herbs.

3. Ukraine does not engage in organic aquaculture, although it has essential potential for this.

4. Currently, Ukraine has no statistics on the development of organic livestock, but in, the basic conditions are not yet sufficient for this, because it requires organic fodder production, tried and tested zootechnic and veterinary technologies.

As for the organic market, the division into regions is as follows: 50% falls to North America, including 46% of the US market, 40% of which is consumed by Europe, of which half of the market is formed in Germany (11%), France (8%), Italy and the UK (3%).

The main indicators of the organic farming development in Ukraine are presented in Table 1.

As Table 1 shows, each and every indicator has positive dynamics. In particular, the area of agricultural land cultivated using the organic farming technologies is gradually increasing. The exception is 2016, when their share somewhat decreased. It should be borne in mind that these indicators also include transitional countries, which may have led to a decline in the indicator. The share of land in organic agricultural production in the total area of agricultural land is gradually increasing, except in 2016, when the share decreased by 10% compared to 2015. There is a positive trend towards increasing the number of organic producers, and hence, the supply of such products grows. It is worth noting that a significant part of the produced agricultural products is exported mainly to the EU countries. In addition, the dynamics of organic consumption per capita, which confirms the increase in demand for organic products in the domestic market, is also positive. This is also confirmed by the growth of sales both in Ukraine and throughout the world.

Consequently, organic farming is an instrument that can bring the agrarian sector closer to the sustainable development goals.

It should be noted that during the study, the question arose as to which factor has the most significant impact on the organic farming development. Therefore, correlation analysis is needed. Given

Table 1. Key indicators of the organic farming development in Ukraine

Source: Compiled by the author.

Year	Organic farming land, hectares	Share of organic farming lands in the total agricultural areas, %	Producers	Organic product market, mln euros	Organic consumption per capita, euros	Share in the world area of organic land, %
2000	–	–	–	–	–	–
2001	164,449	0.1	–	–	–	1.098
2002	164,449	0.4	31	–	–	0.950
2003	239,542	0.58	69	–	–	1.205
2004	240,000	0.58	70	–	–	0.931
2005	241,980	0.59	72	–	–	0.807
2006	242,034	0.59	80	–	–	0.828
2007	249,872	0.61	92	1	–	0.828
2008	269,984	0.65	118	1	–	0.857
2009	270,193	0.65	121	1.2	0.02	0.784
2010	270,226	0.65	142	2.4	0.05	0.745
2011	270,320	0.65	155	5.1	0.1	0.757
2012	272,850	0.66	164	5.1	0.1	0.728
2013	393,400	0.95	175	12.2	0.26	1.045
2014	400,764	0.97	182	14.5	0.31	0.928
2015	410,550	0.99	210	17.5	0.39	0.925
2016	381,173	0.89	294	21	0.49	0.758

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Table 2. Output data for analysis in the USA

Year	Share of organic lands from the total agricultural area, %	Producers	Urban population, %	GNP per capita, USD	Organic consumption per capita, euros
2000	0.22	6,592	79.057	36432,51	28,37053
2001	0.26	6,949	79.234	37241,35	28,08472
2002	0.24	7,323	79.409	38113,89	29,6138
2003	0.28	8,035	79.583	39591,87	29,34045
2004	0.38	7,808	79.757	41838,46	30,57794
2005	0.51	8,493	79.928	44218,31	36,11398
2006	0.37	9,501	80.099	46351,67	41,79411
2007	0.54	11,367	80.269	47954,53	44,14928
2008	0.6	12,941	80.438	48302,28	48,34349
2009	0.6	12,941	80.606	46909,42	52,69662
2010	0.55	13,187	80.772	48311,38	58,95651
2011	0.64	12,880	80.94	49736,43	60,82449
2012	0.64	12,880	81.108	51404	72,2
2013	0.64	12,880	81.277	52737,09	76,64
2014	0.46	13,282	81.447	54657,12	85,29
2015	0.59	14,871	81.617	56411,37	111,2
2016	0.59	14,217	81.788	57558,95	120,85

that the most complete statistical information can be obtained primarily for the United States, and that the US market is almost 50% of the world, then we will conduct a correlation analysis for this country (STATISTICA software is used for calculations).

Consequently, the output conditions were as follows: organic consumption per capita, US dollars, is used as a dependent variable (y); as independent variables (x), 1) the share of organic farming land of the total area of agricultural land in the country; 2) the number of producers in the country; 3) the share of urban population in the country, %; and 4) gross national product per capita, USD, were chosen. Output data are presented in Table 2 and formed based on the World Bank and the Research Institute of Organic Farming (FIBL) data.

Table 2 data and the constructed correlation matrix made it possible to conclude that, with the exception of the dependent variable (organic consumption per capita) and the independent variable (the share of organic agricultural land), all other independent variables correspond to the normal distribution. In particular, the analysis of box plots shows that the organic consumption diagram is shifted to the lower part, the whiskers are asymmetric, but the median is almost in the center. That is, consumption data do not fit into the normal distribution, and therefore it is not possible to speak of the linear dependence. A similar situation, but with a bias in the other part, is observed as to the indicator of the organic land proportion.

The greatest correlation between the dependent variable – per capita consumption and independent variables – is found with a variable of the urban population proportion and GNP per capita (see Table 3). Their coefficients of correlation with the dependent variable are 0.934784 and 0.9233, respectively. The correlation coefficient of the number of producers is also of high importance. The relationship between the GNP per capita and consumption can be considered functional theoretically if we assume that the more income is earned, the more it is spent on consumption, rather than on accumulation. With regard to the high dependence between the urban population proportion and organic consumption, it is obvious that it is urban population who is more inclined to lead a healthy life, especially considering the activities and essential static nature at workplaces, etc. As to the relationship between the number of producers and consumption, it can be concluded that the increase in the supply of organic producers creates and stimulates the demand for such products to a certain degree.

Following the rules for conducting the correlation analysis, multicollinearity variables were checked. It has been determined that two of the four inde-

Table 3. Correlations between indicators selected

Variables	Organic lands proportion	Producers	Urban population, %	GNP per capita, USD	Consumption, euros
Organic lands proportion	1.000000	0.885850	0.829694	0.828382	0.652479
Producers	0.885850	1.000000	0.949284	0.936968	0.846189
Urban population, %	0.829694	0.949284	1.000000	0.985816	0.934784
GNP per capita, USD	0.828382	0.936968	0.985816	1.000000	0.923300
Consumption, euros	0.652479	0.846189	0.934784	0.923300	1.000000

Table 4. Regression results for the dependent variable

Regression results for the dependent variable: Consumption, euros (Table) R = .87169317 R^2 = .75984898 R2 adjusted = .72554170 F(2.14) = 22,148 p

–	Beta	Statistical error – Beta	B	Statistical error – B	*t*(14)	*p*-value
Free term	–	–	–40.8091	15.07537	–2.70700	0.017022
Proportion of lands	–0.451140	0.282284	–84.7315	53.01755	–1.59818	0.132322
Producers	1.245831	0.282284	0.0125	0.00284	4.41340	0.000589

pendent variables have the characteristics of multicollinearity, and they should be excluded from further analysis – these are variables which were mentioned above and which have a correlation coefficient higher than 0.9.

As a result of calculations, the final regression values for the dependent variable of organic consumption per capita were obtained (see Table 4).

It can be concluded that the number of organic producers is statistically significant, and the share of land in organic farming does not have a significant impact on the organic products consumption. At the same time, this can be seen from the point of view that the more producers will offer their products, the more saturated the market will be, and therefore the level of coverage of organic products can be greater.

CONCLUSION

According to the findings of the study, it can be concluded that the organic product market is a dynamically developing one, but remains unconsolidated. The USA, Germany, France and the Great Britain are the leading players on the market. The USA actually forms half of the world market. The Ukrainian market also develops quite dynamically, but despite its significant growth, it still remains small in size, and therefore has significant risks particularly for producers. The further development needs significant support from the state, not only financial, but also in terms of more active promotion of sustainable development and population knowledge about the importance of consumption of quality products in order to improve both their health and contribute to improving the environmental health. In addition, the analysis made it possible to conclude that the environmental component is subordinate to social, economic and financial components, because only changes in the latter can alter the environmental situation in the country and in the world.

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