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FORMATION OF THE ECOLOGICAL-ECONOMICAL MANAGEMENT OF ECOLOGIZATION OF AGRARIAN PRODUCTION

Purpose. The aim of research is to study the main elements of ecological and economic management in the process of ecologization of agrarian production implementing economic and ecological instruments, methods of management, strategy of development.

Methodology / approach. The base for the methodological approaches while developing the innovative model of ecologization of agrarian production was methods of structural analysis (component analysis) and synthesis, due to them diagnostics, and estimation of ecological and economic potential of the industry were made; potential opportunities connected with strategic tasks were determined.

Results. The model of the components of the ecological-economic mechanism of management of ecologization of agrarian production was proposed. The measures to ensure the environmentally friendly management of agrarian business were presented. The main directions of organizational and economic management of ecologization of agrarian production were presented. In the system of ecological-economical mechanism of achieving a high level of competitiveness on the innovative basis was carried out through application of the corresponding methods: organizational, economic, technical-technological, administrative.

Originality / scientific novelty. Novelty is determined by the implementation of the process of ecologization the agricultural production in the context of applying alternative management systems, in which agrarian enterprises are considered as the economic-ecological system, which is based on rational and ecologically grounded methods of production, by providing the quality of the produce and raw material.

Practical value / implications. The results from the analysis include the formed methods of ecological-economical management and mechanisms of their implementation towards: provision of the safe development in agribusiness of the region based on the innovative scheme by developing and supporting the organic production; provision of population with high-quality local ecologically safe produce.

Key words: organic production, ecologization of agrarian production, management, ecological-economic mechanism, economical stimulation, Ukraine.

Introduction and review of literature. The main trend in modern development of agribusiness is globalization of the economy, which is the multi-faceted and complex process, which is connected with the development of human activity and reveals additional opportunities and economic benefits for all countries in the world. At the same time, this process causes negative consequences, which are manifested mainly in the anthropogenic impact on the environment. There was a sharp increase in the negative impact of economic activity of a society on the environmental state during the last few decades. It mainly concerns the area of agrarian production, which is the most sensitive to any involvement into the development of agrarian ecosystem.

Moreover, the actual issue for Ukraine and many other countries in the world is the provision of population with high-quality and safe food products. At that, the main requirements are set not only for the quality of the produce but also for the environmental conditions.

The output of domestic agricultural products on the European market today acquires a new socio-economic content, and it is necessary to change the priorities in the system of agrarian relations. That is why today there is a process of reconsidering the role of economic and environmental priorities and the obvious advantage is given to the environmentally safe development of the agrarian production. The priority place in the agrarian system should be taken by the environmental quality criterion at the national level, and the need for ecologization the agrarian production. It is beyond any doubt and requires an immediate search for radical ways for its global implementation.

Nowadays political, economic and social conditions have already been created for the development of environmentally-directed innovations in agricultural production. In order to benefit from these prerequisites and as a consequence from the results of the introducing this type of innovation, an ecological and economic management system should be implemented. The system is considered by scientists as an integral part of managerial science that takes into account and implements the objectives of environmental protection and rational use of economically and environmentally balanced production resources in the planning, implementation and control of economic actions to ensure the balanced functioning of the ecosystem, as well as its innovative development [1].

The main way to overcome the environmental crisis that has developed in the agrarian sector of the country is to integrate the interests of the environment and economy in agricultural production. At the same time, it is necessary to take into account on the one hand the close correlation of the natural use of agro-systems, the state of the environment and the resource potential of the country, and on the other hand the prospects for the development of the national economy [2].

Optimizing the use of the environment in agricultural production and minimizing the negative impact on it can be achieved by improving the organizational and economic mechanisms of natural management.

The development of an ecological and economic mechanisms for the organization and development of agriculture will provide the formation of human social-ecological and economic values in the agricultural system.

The studies by I. S. Voronets'ka [3], T. Niemmanaea, R. Kaveetab, C. Potchanasinc [4], O. V. Prokopenko [5], L. A. Khromushyna et al. [6], O. I. Shkuratov [7] and other scientists are devoted to the issues of formation of the economic mechanism of environmental management of agrarian production and environmental activities.

Economic approaches to improving the mechanism of production and consumption of environmentally safe products are also considered in the works of S. M. Illyashenko [8], I. O. Yasnolob, V. V. Pisarenko et al. [9] and others.

There are several different types of economic mechanisms depending on the tools influencing the implementation of the environmental activities. The scientists O. V. Koniaiev and G. Y. Zhuikov distinguish two types: compulsory and encouraging. For example, the first one includes preferential crediting of agricultural producers; price stimulation of environmentally friendly products; subsidies (centralized or local); interest-free loans; exemption from taxes, a part of the profit (income) [10]. Authors A. V. Dubodielova, O. V. Yurynets, M. M. Fedoriv in addition to these two types of economic mechanisms distinguish the third one – marketing, which includes the following directions, such as creation and provision of development of the market of natural resources and environmentally-friendly goods; expansion of the “marketing chain” structure with the inclusion of the environmental expertise; trade of quotas on harmful emissions; ecological excise tax, environmental insurance and promotion, etc. [11].

When there are changes in the relationship between the society and the natural environment, there are also changes in the human consciousness, psychology, system of values and behavior toward the environment. The main stimulus for the initiation of this process is the appearance of new needs of the society, which would combine economic, environmental and social components [12]. That is, the transition to the economy which is focused on the principles of ecologically balanced development requires, first of all, the change of human attitude to the environment.

According to M. S. Vitkov modern condition of the market transformation in Ukrainian economy should foresee the transition from the extensive economic development to the intensive but ecologically safe, steady economic growth and innovations on the energy and resource-saving base [13, p. 126]. Due to that fact, it has appeared the need for transition of enterprises in agrarian area to new management systems which could provide ecologic-economic balance for the agrarian business. It is worth noting that the transition to the new management system is a complex and time-consuming process, which could be implemented by developing a new innovative model for developing of agrarian enterprises.

We are sure that the functioning of agricultural enterprises must take place according to the concept of safe development, but it requires the creation of completely new conditions for entrepreneurial activity, the base is the ecologization of agrarian production, increasing efficiency of application of the resource potential of the agro-industrial complex, formation of the ecologically focused management system at the global and regional levels and mainly the provision of population with high-quality food products. Therefore, we believe it is necessary to develop the qualitatively new innovative model of the managing business activity by agrarian enterprises which will differ from the traditional system of management by ecologically safe conductance of agrarian business, its greenings, which is an integral part of the safe development strategy.

However, the problem of the formation of a strategy for the ecologization of agrarian production is still not sufficiently investigated both in the theoretical and practical aspects.

The purpose of the article. The aim of research is to study of the main elements of ecological and economic management in the process of ecologization of agrarian production implementing economic, and ecological instruments, methods of management, strategy of development.

Results and discussion. Ecologization of agrarian production is an integral part of implementing the concept of safe development. However, sustainable development of the agrarian production is possible with corresponding actions of agrarian enterprises towards ecologization and innovative approach to production with the purpose of their transition to a qualitatively new level of agricultural business activity, where the preference is provided for ecologically safe development of the agrarian production.

Today agricultural enterprises of Ukraine require sustainably-focused reconstructions in their producing activity, the latter includes:

- rational use of land which is accompanied by conserving and increasing the fertility of the soil;
- provision of the optimal level of land plowing, which makes impossible water and wind erosion of the soil;
- compliance with the regulations on limitation of exceeds in acceptable norms of contamination for produce, provision of environmental friendliness;
- compliance with the regulations towards transportation, storing and application of mineral fertilizers, means of protecting plants and animals;
- avoidance of environmental and food contamination by chemical substances;
- compliance with ecological norms during projecting, building, reconstruction and commissioning new structures and buildings, ameliorative systems and so on.

The modern economic direction in the business activity of agricultural enterprises in our opinion can be determined through the combination of economic and social problems of the rational use, recovery and protection of natural resources of agri-sphere on the innovative base. We consider that ecologization of the production at agrarian enterprises is tightly connected with the innovative activity and should be considered as an integral part of its development with the creation at the government level of the system of ecological-economic management. Therefore, the organization of the production relations in agriculture should take place based on the rational application of the natural resources – on the one hand and formation of the system for managing them on the other hand. To achieve this, it is necessary to apply innovative technologies – economic models which based on the usage of organic farming and optimization of the production processes make possible to achieve a high level of management, predictability and efficiency. Unlike traditional technologies they are based on the use of energy- and resource-preserving systems of agricultural production [14].

We generalized the main tasks of ecologization of the agrarian production (Fig. 1). Today the most important problem is the provision of population with high-quality food products, made in the agrarian sector, as well as solution to issues of food security. At that the main demands are made not only for the quality of the

products but also for the condition of the environment. These problems are crucial both in Ukraine and in many countries of the world [15].

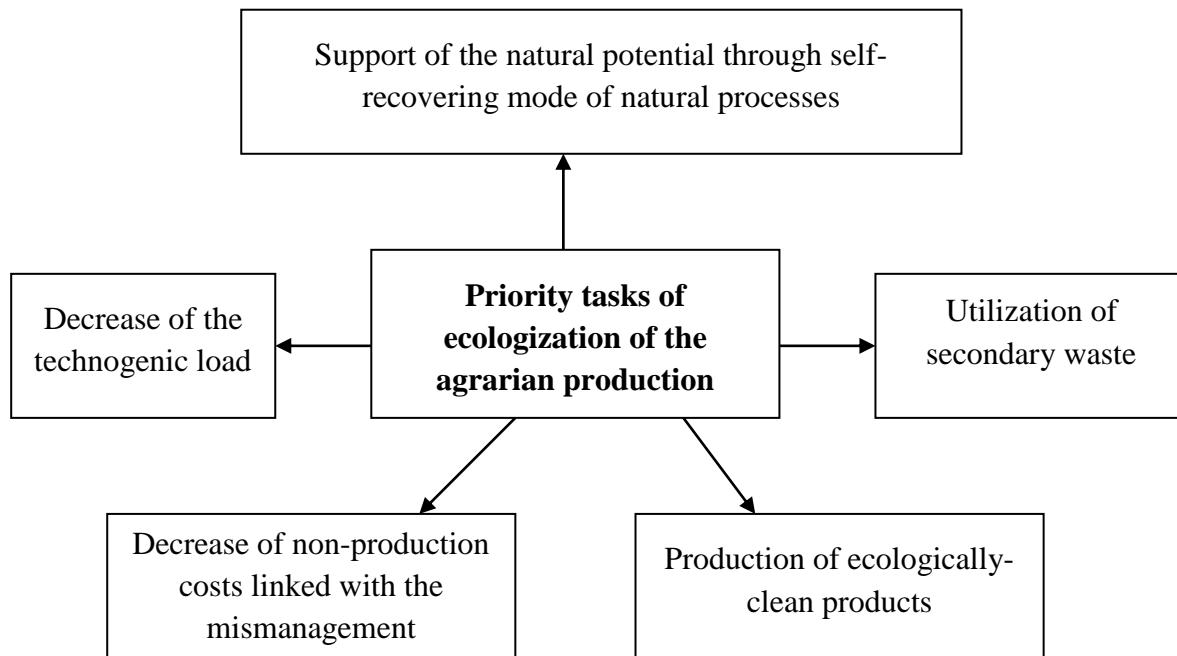


Fig. 1. Tasks of ecologization of the agricultural production in Ukraine

Source: generalized by the author.

The innovative model of agricultural development sets a goal to increase competitiveness of agricultural enterprises in production and distribution-marketing spheres by means of implementing modern technologies, types of products and methods of management [16].

In our opinion, to provide the main principles for the sustainable agricultural development in the region it is necessary to green the agricultural activity; enhance the efficiency of use of the resource potential in the industry and formation of ecologically-focused system of managing agrarian production.

Understanding the ecological insecurity makes population reconsider their attitude towards foods. More and more attention from consumers is paid to the state of health however they realize the interrelation between the selection of food and the state of the environment which are the main factors of influencing people's health.

The ecologization is the current direction in the activity of agrarian enterprises and it is based on mastering ecological-economic methods of management, with the purpose of providing extended recovery of natural resources at the expense of forming sustainable ecological-economic systems, increase in amounts of production of competitive ecologically safe products, creation of agrarian systems using ecological methods of management.

Functioning of agrarian enterprises according to the concept of safe development requires creation of fundamentally new conditions for entrepreneurial activity, the base of which is ecologization of the agricultural production and increase in efficiency of applying the resource potential of the agro-industrial complex and formation of the ecologically focused system of management.

O. G. Minkova notes that the ecological component in the agrarian business implies the scientifically grounded complex of mutually connected agro-technical, ameliorative, soil protecting and organizational-economic measures at efficient use of the land, climatic resources, biological potential of plants with the purpose of receiving stable harvest of agricultural crops under the yield increase and keeping to ecological safety of the environment and grown produce [17]. T. L. Shkabara determines potential ecological benefits of the domestic agrarian sector at the level of separate objects of management [18].

I. M. Synyakevych dealt with ecologization of the public development as the «concept which implies ecologization of the economic and social policy and recovery of the spiritual sphere with the help of the system of efficient tools with the purpose of providing steadiness in ecological systems and removal of the global, national and regional ecological threats» [19].

In the scientific publications, O. V. Shubravskaya states that the humanity starts to comprehend deeper the threats from negative trends in dynamics of condition indicators in social and ecological components of public development therefore insists on transition toward ecologically clean produce [20].

The economist Z. V. Nikitina comprehends ecologically-focused production «as one that takes place on the base of the rational use of agricultural lands with the application of adaptive-landscape farming system in combination with their biologization and moderate chemical changes of technological processes» [21]. O. V. Kovalova determines such a category as «ecologically-focused agricultural production», that is the business activity, which main aim (getting profit) is achieved by meeting the demand at the market of production and raw material with the simultaneous decrease in the negative impact on the environment and encourages the steady development of agricultural areas [22, p. 10].

The market is represented by a certain list of organic products, which are in high demand. According to the Federation of Organic Movement of Ukraine organizations published in the joint report, Ukrainian producers are represented as commodity exporters. Studies of the Federation of Organic Movement of Ukraine show that the modern domestic consumer market for organic products in Ukraine began to develop from the beginning of the 2000s [23].

The process of introducing organic production in Ukraine is quite high. About 60 % of the crops are occupied by wheat, barley, sunflower and corn. The rest of the sown area is allocated for peas, rape, buckwheat, soya, rye, oats, sorghum, millet, mustard, sugar beet, esparset and others.

The results of the analysis of profitability of production of organic and intensive products are presented in figure 2.

Analysis of the profitability of the production of organic and intensive products suggests that the vast majority of its level is higher by applying organic technology. The only exceptions are fruits, soya and sunflower.

It is important to note that the development of the organic products` market is influenced by global or local trends.

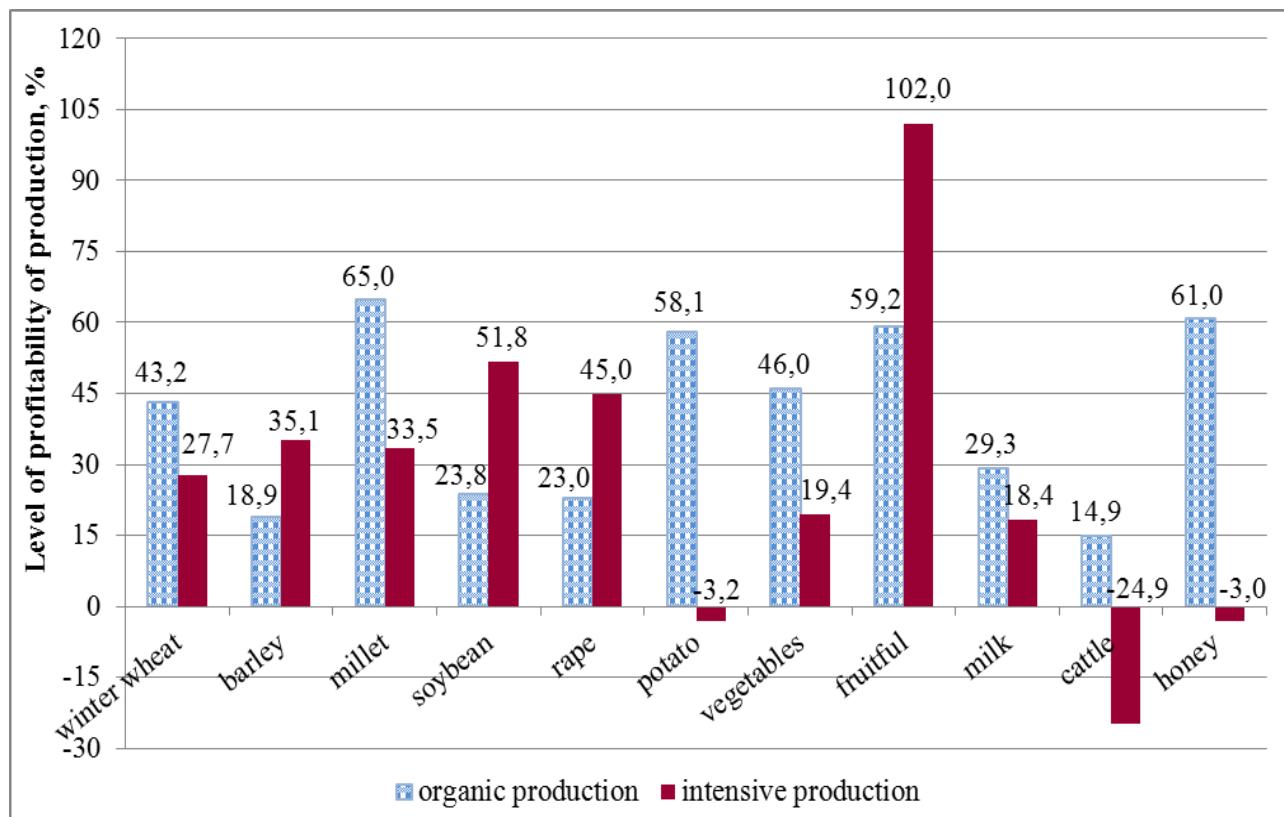


Fig. 2. Comparison of profitability of production of organic and intensive products at agricultural enterprises of Ukraine, 2017

Source: calculated by the author according to statistical reporting and sample surveys of enterprises.

H. Kirchmann and L. Bergström recognize that there is a level of risk associated with organic production, which is associated with the probability of loss of part of the crop due to the intensive development of diseases and pests, as well as less resistance of plants to stress factors [24]. W. Edwardson and P. Santacoloma claim that the demand for organic products is limited and is concentrated in North America and Europe which account for 96 % of global revenues in the sector and in some rich countries in Asia, such as Japan, Singapore, South Korea, and Taiwan. Currently most consumers in poor countries are not willing to pay a premium price for organic products [25].

Combining expected population growth and projected land use reveals that low-yielding agriculture is an unrealistic option for producing sufficient food in the future. Organic agriculture is subject to severe supply-side constraints, not least because of the lack of plant-available nutrients, and cannot be a major food source for the world. Further improvement of conventional agriculture based on innovations, enhanced efficiency, and improved agronomic practices seems to be the only way to produce sufficient and affordable food for a growing world population while minimizing negative environmental impacts [26].

The model of the components in ecological-economic mechanisms of management in agricultural production has been suggested by the author (Fig. 3).

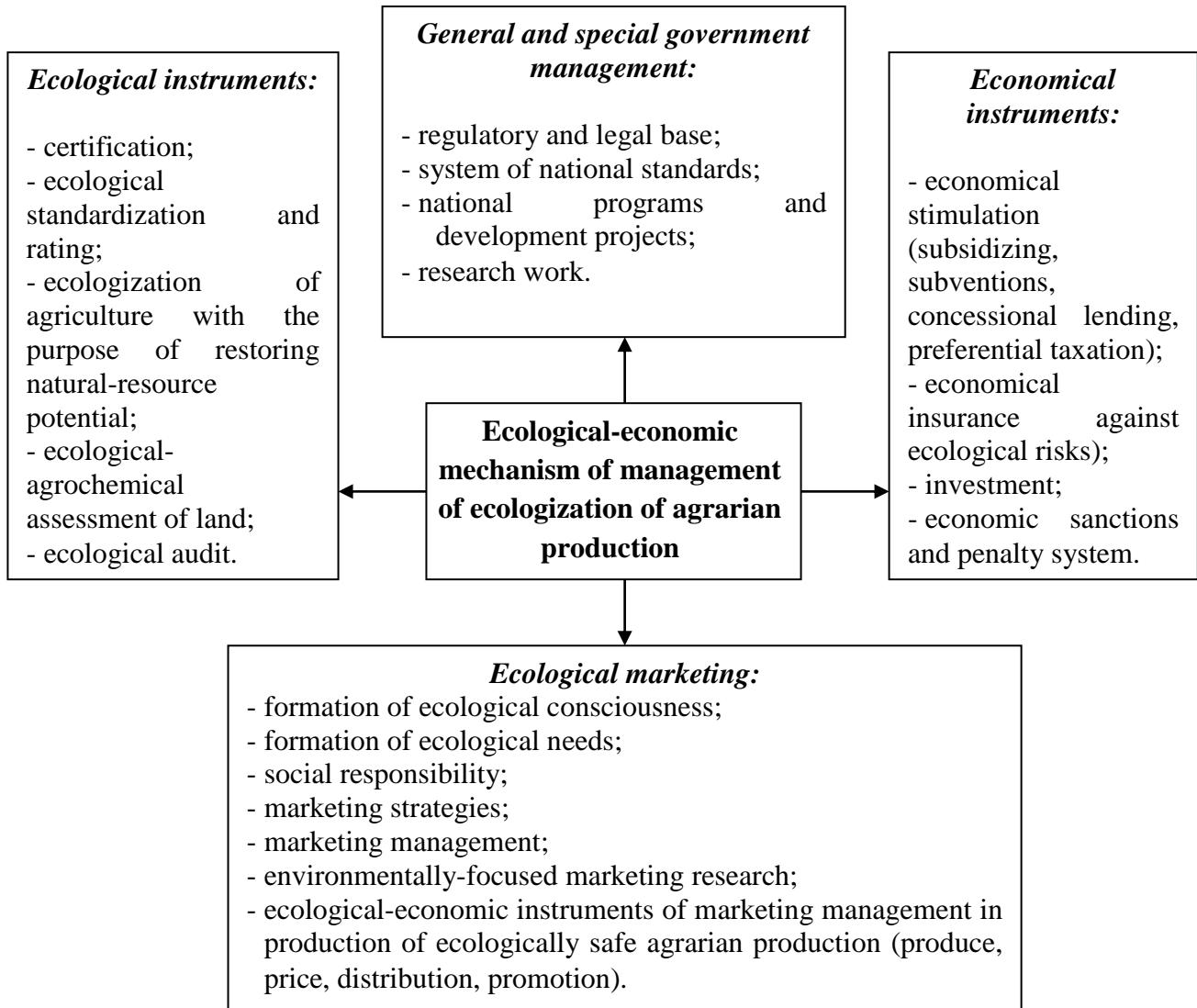


Fig. 3. Structural elements of the ecological-economic mechanism of management of ecologization of agrarian production in Ukraine

Source: built by the author.

All economic and ecological tools of this model are interconnected, and its important component is a system of government environmental management, which includes: general management and special management. At that the public authorities of general competence carry out their activities by adopting resolutions and orders on key issues in the agrarian sector; the public authorities of special competence ensure the implementation of the state policy in various areas.

Ecological management tools (Fig. 4) imply the certification and labeling of environmental products, which proves that the correspondence of the certain object to the specific regulatory document is kept. The process of certification and standardization should be carried out in accordance with the international standards adapted to the conditions of Ukraine.

Ecological and economic tools, in our opinion, are an integral part of environmental marketing, which is to meet the needs of consumers and preserve the environment and they include:

- production of ecologically safe agricultural food products and their ecological positioning;
- price formation taking into account environmental costs;
- formation of a market with ecologically safe food products, based on international standards of ecological agricultural production;
- distribution of ecologically safe agricultural food products;
- formation of the information and communication system for the promotion of agricultural food products.

Economic stimulation of environmentally-focused agricultural production is directly related to the protection and use of land, conservation, reproduction and increase in soil fertility, as well as the protection of the environment as a whole.

Economic incentive methods of ecologization of agrarian production should be fixed at the legislative level and included:

- a) provision of tax and credit privileges to citizens and legal entities that carry out at their own expense the measures of use and protection of land which are included in the national and regional programs;
- b) allocation of funds from the state or local budgets to citizens and legal entities for the restoration of the previous condition of land, caused not by their fault;
- c) exemption from payment for land plots in the stage of agricultural development or improvement of their state according to the state and regional programs;
- d) compensation from the budget funds to reduce the income loss of land owners and land users as a result of the temporary preservation of the degraded and unfertile land that was caused not by their exploitation.

The principles of the economic stimulation mechanism include: the principle of combining economic stimuli and penalties; the principle of stimulating the final results of the carried out measures; the principle of independence doing business (independence from the organizational and legal forms of activity).

A promising direction for establishing economic relations between certified agricultural and processing enterprises of the organic sector is the creation of market-based formations based on horizontal and vertical integration and co-operation. Co-operation combines commodity producers into their market activities on the basis of their voluntary involvement in the processes of integration with mutual assistance and economic cooperation. Such unions give them the opportunity to earn profits not only directly from the agricultural production, but also from the subsequent stages of the movement of their products, participate in large-scale business, use professional managers, allocate risks, control the marketing channels of product distribution and material and technical supply, influence prices through the formation of large batches of products and the application of modern marketing methods and technologies, to be equal partners in the competitor market environment.

In order to ensure the integrity of the interaction of all elements of the economic mechanism of ecologization in the agrarian production, its principles, criteria, tools, sources of financing and incentive methods are determined (Fig. 4).

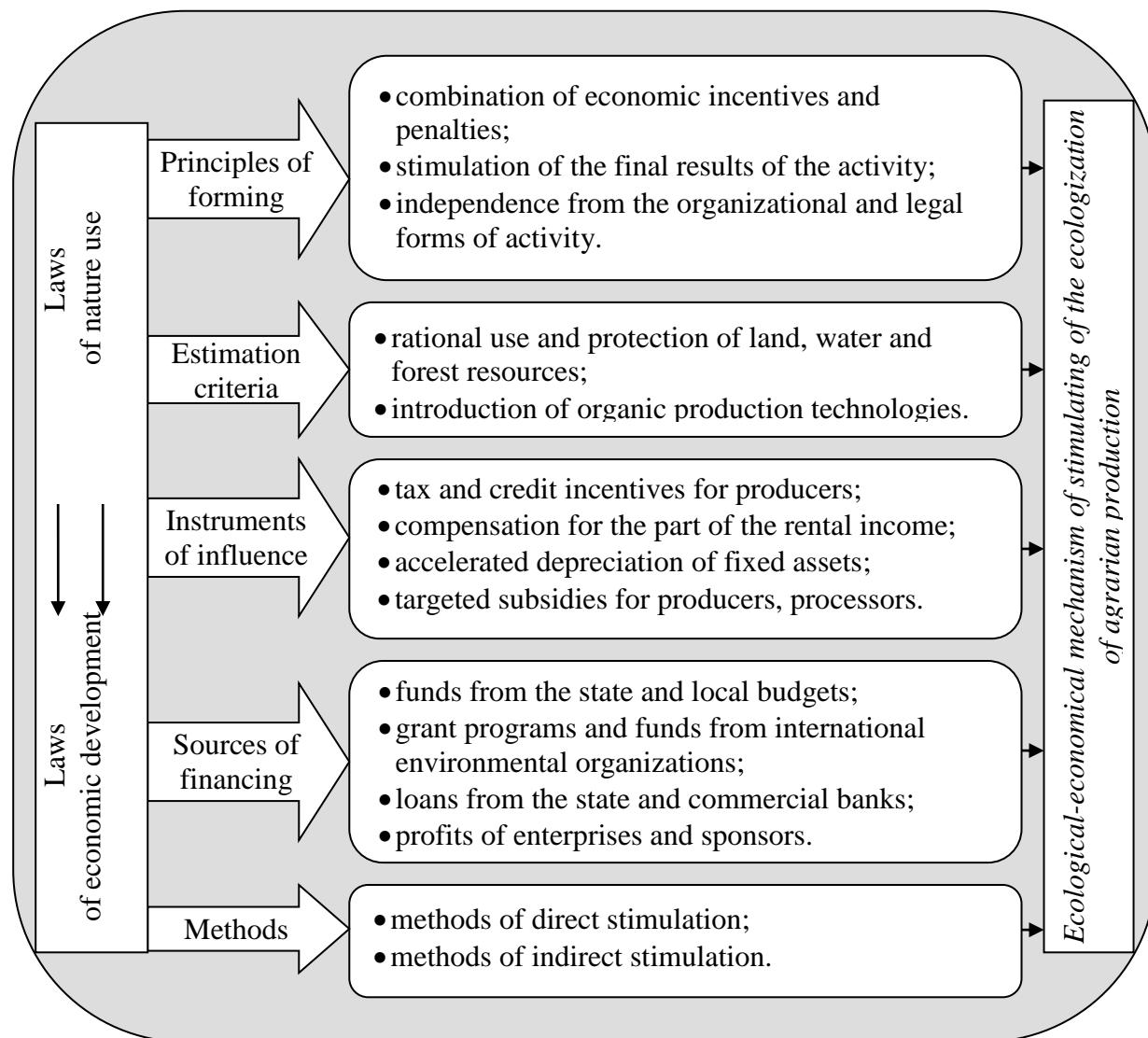


Fig. 4. Ecological-economical mechanism of stimulating of ecologization of agrarian production in Ukraine

Source: built by the author.

The main directions of organizational and economic management of ecologization of agrarian production in Ukraine are:

– formation at the state level of measures that can change the format of relations between production and the environment in the direction of the rational use, reproduction of agricultural systems;

– implementation of environmental policy measures at the state and regional levels, the basis of which is the process of introduction and development of environmentally friendly production, the rational use of the possibilities of the state's economy, especially its financial resources, production, scientific, and technical potential;

– determination of social priorities considering the specific ecological situation in the regions, according to which it is planned to eliminate the negative phenomena of nature management and transition to environmentally friendly production;

– combination of state influence with the market forms of management,

stimulation of qualitative changes through priority financing, lending, material and technical, information support, introduction and development of environmentally friendly production;

– carrying out economic-ecological monitoring over the process of transition to environmentally friendly production in the analysis of internal strengths and weaknesses of agricultural producers;

– account of changes in the factors of macro- and microenvironment and their impact on the competitiveness of products and enterprises in the agrarian sector of the economy, namely, to detail their actions, to clearly distinguish market opportunities and threats.

Conclusions. Nowadays the transition to new agribusiness systems is a complex process and for its implementation it is necessary to change the principles of functioning of agricultural enterprises, accelerate their innovative development and provide the possibility for their organizational transformations. Therefore, the modern conditions of the management of agricultural enterprises in Ukraine require the formation of a whole scientifically grounded management system that considers the interests of the consumer aimed at balancing of the demand and the supply with minimal losses, provides profitability of sales activities and makes possible to respond adequately to changes factors of macro- and microenvironment.

Provision of the efficiency of agricultural enterprises under market conditions is possible by increasing the productivity of crops and livestock, restoring the specialized production, reducing the costs of production and sales of products, improving the system of sales, and, as a result, the level of merchantability and profitability of organic products. Also, for agricultural enterprises, it is important to address such issues as expanding the range and increasing the volume of organic production along with the demand for this type of product on the market, improving the quality and competitiveness of products, especially in the domestic market, improving the economic relations between processing and marketing enterprises.

For the effective functioning of the mechanism of ecological and economic management, the strategic approach must be combined with the environmental management system. At the same time, it is important to note that the traditional system of environmental management is sufficient for the generally accepted system of economic activity. Whereas, it is necessary to rebuild the existing system in accordance with the requirements of international standards to achieve competitive advantages in the world market. Thus, for the transition of agricultural enterprises to an ecologically oriented type of management, it is essential to take into account ecological and economic methods of management. Furthermore, the organization of industrial relations in agriculture should be based on the rational use of natural resources and the formation of an ecological and economic management system.

The cooperatives, which are engaged in servicing the following stages of the process of organic production and sale of products, are also able to achieve successful distribution and sale of organic produce. In addition, along with the agribusiness marketing services, they cooperate with supermarkets, restaurants, specialized shops,

hospitals, enterprises for storing organic products, etc.

Further research will be aimed at identifying effective ways to promote environmentally friendly products to the market through the certification of agricultural production and support of institutes that operate in this area.

References

1. Melnik, P. P. and Yehorova, T. M. (2014), The Concepts of Ecological and Economic Management in Agroecosystem. *Scientific Bulletin of UNFU*, vol. 24(2), pp. 114–119.
2. Volyk, N. H. (2006), Economical development of the agricultural production. *State and regions. Series «Economy and Entrepreneurship»*, no. 4, pp. 60–63.
3. Voronets'ka, I. (2011), Specificity of formation of the environmental marketing in agricultural sector. *Economist*, no. 10, pp. 26–28.
4. Niemmanee, T., Kaveetab, R. and Potchanasinc, C. (2015), Assessing The Economic, Social, And Environmental Condition For The Sustainable Agricultural System Planning In Ban Phaeo District, Samut Sakhonn Province, Thailand. *Procedia – Social and Behavioral Sciences*, no. 19, pp. 2554–2560. <https://doi.org/10.1016/j.sbspro.2015.07.621>.
5. Prokopenko, O. V. (2011), Consumer choice types in marketing of ecological innovations. *Actual Problems of Economics*, vol. 116, is. 2, pp. 109–116.
6. Khromushyna, L., Konieva, I., Skrypnyk, Yu. and Shalyhina, I. (2018), Formation of Resource Potential of Agrarian Enterprises on the Principles of Ecological and Economic Security. *Journal of Environmental Management and Tourism*, vol. IX, is. 5(29), pp. 979–986. [https://doi.org/10.14505/jemt.v9.5\(29\).09](https://doi.org/10.14505/jemt.v9.5(29).09).
7. Shkuratov, O. (2018), Methodology for estimation of ecological safety in the agricultural of Ukraine. *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development*, vol. 18, is. 3, pp. 379–386.
8. Illyashenko, S. M. (2012), Eco-friendliness as a factor of product's competitiveness. *Actual Problems of Economics*, is. 135, pp. 143–150.
9. Yasnolob, I. O., Pysarenko, V. M., Chayka, T. O., Gorb, O. O., Pestsova-Svitalka, O. S., Kononenko, Zh. A. and Pomaz, O. M. (2018), Ecologization of tillage methods with the aim of soil fertility improvement. *Ukrainian Journal of Ecology*, vol. 8, no. 2, pp. 280–286. https://doi.org/10.15421/2018_339.
10. Koniaiev, O. V. and Zhuikov, G. E. (2009), Economic regulators formation of the mechanism of ecologization of nature use in regions of irrigation regions. *Biznes-Navigator*, no. 2(17), pp. 182–187.
11. Dubodyelova, A. V., Yurynets, O. V. and Fedoriv, M. M. (2011), Organizational-economic mechanisms of ecology production at domestic enterprises. *Proceedings of the National University «Lviv Polytechnic». Problems of Economics and Management*, no. 698, pp. 156–162.
12. Vasiutkina, N. V. (2014), Formation of a system of sustainable development of enterprises. *Economy of Development*, no. 2, pp. 93–98.
13. Vitkov, M. S. (2008), *Intensyfikatsiia silskohospodarskoho vyrobnytstva na innovatsiinii osnovi* [Intensification of agricultural production on an innovative

basis], NSC «IAE», Kyiv, Ukraine.

14. Sirtseva, S. V. (2008), Innovative potential as a component of the economic potential of an agricultural enterprise. *Ukrainian Black Sea region agrarian science*, no. 4(47), pp. 115–121.
15. Mihaylenko, O. G. (2014), The development of organic agriculture in the system of European integration processes in Ukraine. *Scientific Journal of Kherson State University. Series «Economic Sciences»*, no. 6(3), pp. 40–45.
16. Kyporenko, V. V. (2015), Improvement of ecological and economic mechanism of the organic agriculture development. *Efektyvna ekonomika*, no. 5, available at: <http://www.economy.nayka.com.ua/?op=1&z=4174>.
17. Minkova, O. G. (2016), Ways and methods of transition from traditional agricultural production to an organic one. *Bulletin of Uman National University of Horticulture*, no. 1, pp. 3–11.
18. Shkabara, T. L. and Ostapenko, A. Y. (2014), Ecological potential of domestic agricultural management in today's processes of European integration. *Scientific Journal of Kherson State University. Series «Economic Sciences»*, vol. 7(4), pp. 131–135.
19. Synyakevych, I. M. (2005), Ekologization development: essence, objective necessity, principles, instruments, prospects, for Ukraine. *Scientific Bulletin of UNFU*, vol. 15.6, pp. 98–102.
20. Shubravskaya, O. V. (2008), The market of organic products and prospects for its development in Ukraine. *Economy of Ukraine*, no. 1, pp. 53–61.
21. Nikitina, Z. V. (2005), Ecologization of production of agricultural enterprises. *Agrarian science*, no. 6, pp. 14–15.
22. Kovalova, O. V. (2008), The Organization of Environmentally Friendly Agricultural Industry Management, Ph.D. Thesis, Economics and Management of National Economy, NSC «Institute of Agrarian Economy», Kyiv, Ukraine.
23. Willer, H. and Kilcher, L. eds. (2011), The World of Organic Agriculture. Statistics and Emerging Trends 2011. FiBLIFOAM Report. IFOAM, Bonn and FiBL, Frick, Switzerland.
24. Kirchmann, H., Bergström, L., Kätterer, T., Andrén, O. and Andersson, R. (2009), Can Organic Crop Production Feed the World? Organic Crop Production – Ambitions and Limitations. Springer, Dordrecht. https://doi.org/10.1007/978-1-4020-9316-6_3.
25. Edwardson, W. and Santacoloma, P. (2013), Organic Supply Chains for Small Farmer Income Generation in Developing Countries, Agribusiness and Food Industries. Series 2. Food and Agriculture Organization of the United Nations, Rome, Italy.
26. Willer, H. and Lernoud, J. eds. (2017), The World of Organic Agriculture. Statistics and Emerging Trends 2017. FiBL, IFOAM, Bonn and FiBL, Frick, Switzerland.

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