

**Ruslana Levkina**

*Doctor in Economics, Professor,  
Professor at the Department of Entrepreneurship  
and Exchange Activities  
State Biotechnological University*

**Yana Kotko**

*Ph.D. in Economics,  
Assistant Professor at the Department of Entrepreneurship  
and Exchange Activities  
State Biotechnological University*

**Artur Levkin**

*Ph.D. in Technical Sciences, Associate Professor,  
Associate Professor at the Department of Cybernetics  
and Information Technologies  
State Biotechnological University*

## **STRATEGIC MANAGEMENT OF SUSTAINABLE DEVELOPMENT OF AGRICULTURAL ENTERPRISES**

### ***Summary***

*According to the authors, the transition of agricultural enterprises to the position of sustainable development is possible only with the effective implementation of appropriate strategy, which aims to form an integrated approach to economic, social and environmental issues. In this case, under social issues it is understood not only the creation of conditions for food security of the country in terms of ensuring the quantitative indicators of consumption of agro-food products, but also compliance with the qualitative characteristics of food products. These include foods that are made from raw materials derived from organic technology, and contain a particular set of vitamins, minerals, amino acids, etc. The transition to organic technology in general and especially in the cultivation of labor-intensive crops (berries, fruits, vegetables) creates conditions for solving the most pressing social issues: increasing employment in rural areas, the development of rural infrastructure, etc. Thus, the study of the structure of the mechanism of effective management of sustainable development of agricultural enterprises is particularly relevant and allows to choose a strategy that takes into account the maximum number of different factors of influence. The article offers the authors' approach to the solution of theoretical, methodological and practical issues of implementing the models of building the mechanism of agricultural enterprises by switching to organic methods of farming and expanding specialization through high-yield crops. This will undoubtedly lead to*

*significant changes in production and commercial activities, which will be associated with the search for new markets, suppliers of material and technical resources, highly qualified personnel and innovative solutions. It is the innovation-adaptive model of implementation of the combined strategy of management of sustainable development of agricultural enterprises will allow them to function effectively in conditions of uncertainty and risk. Improved by the authors methodological approach to the definition of performance indicators and criteria for compliance with the conditions of sustainable development of agricultural enterprises has allowed to determine the boundary of the transition to an unstable condition. Further research by the authors will be devoted to the analysis of the results of the practical implementation of the proposals at the micro- and meta-levels.*

### **Introduction**

The activities of domestic agricultural enterprises take place under conditions of constant risk, uncertainty and high probability of changes in the course of the state and the market environment. This requires agricultural enterprises to adapt to the turbulent conditions and simultaneously solve social and environmental problems. The solution of such problems in the context of achieving appropriate goals makes it possible not only to create favorable conditions for the development of agricultural entrepreneurship, but also to increase employment in rural areas, and thus to solve social problems. At present, domestic agricultural enterprises are characterized by the priority of social and environmental issues. Therefore, the solution to the formulated problem is a possible way of formation and implementation by the subjects of agricultural business strategy for sustainable development, based on four components: economic, social, environmental and energy. Of this list, the first three are already quite traditional, since they focus the attention of the vast majority of scientists studying the problem of sustainable development [1]. The paper proposes to improve the methodological approach to defining the concept of sustainable development in the agricultural sector by introducing an additional energy component, which, on the one hand, is the result of the previous three, and on the other, is an independent component and allows to determine the corresponding sustainability indicator. The energy component allows to establish the limit of sustainability in the process of their production and marketing activities, exceeding which increases the likelihood of irreversible changes in the environment. In this case, natural resources cannot perform their functions without additional financial and other expenses for their restoration. The practical implementation of the management mechanism of agricultural enterprises is based on the strategy of sustainable development, the construction and implementation of which will be considered in the work in the context of the studied enterprises. This characterizes the relevance and scientific significance of the published article.

Thus, the purpose of this publication is to consider the issues of theoretical, methodological and practical nature for the formation and implementation of models of strategic management of agricultural enterprises, the effectiveness of which should be evaluated on the basis of a comprehensive approach to the definition of indicators that take into account economic, social, environmental and energy components.

### **Part 1. The categorical and conceptual basis of the theory of sustainable development**

Given the definition of sustainable development, which in a general sense means the concept of establishing and ensuring a balance between the economic interests of business owners and the satisfaction of modern consumer needs, protecting the interests of future generations, including safe working conditions and the environment. Sustainable development is always a managed development by the state, the management of the business structure, the consumer center. According to the above, control (management) occurs by direct and indirect methods. However, the process of manageability (management) is based on a systematic and comprehensive approach based on the introduction of information and analytical technologies in the activities of enterprises. Such technologies make it possible to determine the optimal development option, taking into account the influence of numerous factors and a number of constraints of technical-technological, economic, market, resource, infrastructural nature.

Analysis of scientific works of domestic and foreign scientists allows to draw a conclusion about the multifaceted use of the category "sustainable development" in research [2–6]. Thus, the Italian version is "sviluppo sostenibile" or "development worthy of support"; in French – "development durable" or "long-term development"; in Japanese – "jizoki-tekina kaihatu" or "long-term development"; in German – "nachhaltige entwicklung" or "long-term development"; in Swedish – "en stadig utveckling" or "sustainable development" [7–9]. These scholars, in studying the linguistic meaning of the term, actually pay attention to the various manifestations of sustainability and are forced to confine themselves to stylistic and grammatical vocabulary.

The Ukrainian language uses the very concept of "stalyi rozvytok", which is the official equivalent of the English term "sustainable development" [10]. It is noted that the literal translation of this term is "viable development" or "self-sustaining development" or "comprehensively balanced development." Some believe that the most accepted meaning is sustainable development [10], and some believe that the terms are identical [11]. The definition of "sustainable development" has also been studied by the following scholars: I. K. Bystriakov [12], V.V. Trofimova [13], O.L. Popova, M. Khvesyk [14] and others. Bystriakov I.K. notes that the essence of sustainable development is based on the specifics of social relations, the manifestation of which are forms of economic management, which differ in different regions of the country. It is

the national and psychological characteristics of the population of a particular territory that have the greatest impact on the possibility and effectiveness of sustainable development [12]. V.V. Trofymova believes that sustainable development cannot but be influenced by integration processes in the world, so it cannot be limited to the territory of a single enterprise or region of the country [13]. Thus, it is about the globalization of sustainable development, which, according to M.V. Honcharenko, is unjustified [15]. General analysis of theoretical and practical works on the study of this issue [16–20] indicates the absence of a holistic concept of sustainable development management and a single concept of "sustainable development", although often the basis is taken as a definition proposed by Yu.M. Lopatynskyi in his work [21].

The paper considers that for the sustainable development of agricultural enterprises it is necessary to adjust their specialization by gradually increasing the share of income from the production of high-intensive products and the transition to organic technology. Thus, there is a gradual transition to the substantiation of the methodological approach to the formation and implementation of sustainable development management strategies, which combine economic, social, environmental and energy components and allow to solve socio-economic development issues in practice [22].

### **Part 1. Structure of sustainable development management mechanism**

With a superficially close connection between the sustainable development management mechanism and the mechanism of management of socio-economic development, there is a significant difference between them, which is explained by the definition proposed in [22]. The category "socio-economic development of the enterprise" should be considered a process of irreversible actions aimed at natural changes in the economic condition and social infrastructure, as a result of which the organizational and economic structure is transferred to a fundamentally new qualitative level [23]. Complexity and consistency requires an approach to the mechanism of management of socio-economic development of agricultural enterprises as a process of ensuring maximum productivity, rational use of natural, financial, material and technical and labor resources in the context of compliance with indicators that ensure the social potential and efficiency of production and marketing activities subject to the introduction of a system of moral and material incentives for personnel [24; 25]. Despite the active use of the social component in both mechanisms, its application is different. According to the authors, the concept of "sustainable development management" is methodologically broader and affects almost all spheres of human life, taking into account not only the economic and social interests of people, but also the interests of nature, wildlife, biodiversity and much more. However, it is quite fair to introduce the mechanism of management of socio-economic development of the enterprise as part of the mechanism of sustainable development management.

According to the study, the state plays the role of the main external regulator and coordinator of the mechanism of sustainable development of the agricultural enterprise, performing these functions through institutional and legal instruments of influence on production and marketing activities.

Market regulators promoting the principles of competitiveness and open competition in close cooperation with state regulators both influence and promote the efficiency of agricultural enterprises to balance their economic interests and the economic interests of consumers. A stable balance over a sufficiently long period of time allows to create conditions for the further development of agricultural production and its expanded reproduction. At the same time the provision of economic interests should take place with the creation of practical bases for the provision of social interests, the manifestation of which, according to this study, is the solution of the food problem. The global nature of the food problem has various manifestations, characteristic of any country in the world, even a highly developed one with a socially oriented economy. Therefore, the main challenges have been and remain the issues of saturating the market with cheap food products and providing access to quality and environmentally friendly products. Effective measures can be the formation of demonopolized sales channels of agricultural products, the effective use of market instruments, the introduction of effective state compensation mechanisms in the process of resource provision of production and sale of products at social prices. Limiting the influence of intermediaries and other market infrastructure participants on pricing and reducing the logistics chain from producers to consumers also yields high results.

Based on the authors' definition of sustainable development and sustainable development management mechanism at the micro level, its structure should be based on a set of interdependent and complementary balanced components, which include: economic, social, environmental and energy (Figure 1) [22]. Among the regulators of internal environment there are production, financial, marketing, sales, research, personnel, information and management policy. The authors believe that the motivation system, as a component of the personnel policy, should be considered as one of the tools for the implementation of the enterprise management policy [23]. Building a motivational system of an agricultural enterprise should take into account: the peculiarities of national mentality; traditions of farming in agriculture; cultural and social conditions of life; intellectual potential of the rural population and the desire for entrepreneurship; traditions in the use of equity to develop joint business; level of trust in the leadership; attitude to work and leisure, etc.

Given the predominant gravitation of agricultural enterprises to the technical and technological type, when it is the material and technical base, the structure of land resources determine its specialization, and management is inert and unable to assess and adapt to variable conditions, not trusting financial institutions in providing funds for change, it is the production policy is an active

regulator and determines the potential for sustainable development and added value through the diversification of product structure.

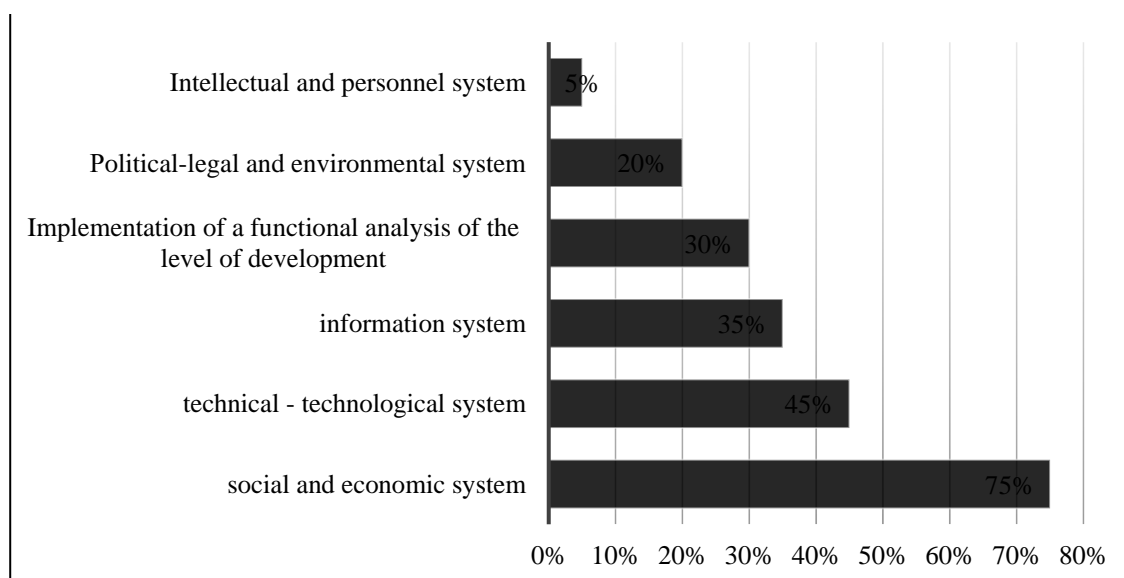
It is the production policy aimed at finding sources of funding and the formation of profit centers that determines other types of enterprise policy: marketing, sales, finance, research, information and personnel. Unfortunately, research policy is currently practically absent in domestic agricultural enterprises, because it is a cost regulator, and research units, centers and laboratories belong to cost centers.

Continuous improvement of marketing policy in the process of creating new consumer needs actually moves the marketing departments and the policy as a whole into the centers of contingent profit, allows to evaluate the consumer segment and more accurately approach the use of marketing tools to influence consumers and generate high profits. Thus, the environment for positioning the company and its products in certain target market segments is formed [24].

The results of the study of the formation and functioning of the management mechanism of sustainable development of agricultural enterprises, which depends on economic, political, informational, social, psychological, climatic, scientific and technological factors in conditions of uncertainty and risk, allow to conclude that it can be implemented only in an effective system of management of socio-economic relations. Such a system is a set of tools, levers, methods, factors for the diagnosis of socio-economic processes at the enterprise, analysis of their results, adjustments, planning, forecasting and implementation of measures to achieve objectives in the short and long term.

In the development of integration processes, the management of agricultural enterprises should pay more attention to the analysis of factors and propose alternative plans for preventive response, elimination or minimization of negative consequences, which is possible only with the introduction of economic and mathematical model of risk management based on the improvement of the organizational and economic structure [25]. The use of methods of economic and mathematical modeling made it possible to draw conclusions about the dependence of the level of business activity of agricultural enterprises on the action of various factors. In terms of strategic planning, the following factors have the greatest impact: clarification of objectives, the choice of methods and means of achieving the goal, the definition of compliance between the goals and capabilities of the enterprise, the rational allocation of resources and adaptation to the internal environment and external environment; in tactical planning – the implementation of a particular strategy in the process of production and marketing activities, taking into account global and domestic experience and implementation of innovation potential in an intensely changing environment; in operational planning – compliance and implementation of operational tasks, which must be carried out effectively, taking into account the financial costs, as well as the timely prediction of possible changes and the prevention of their negative impact, adaptation to the capricious natural and climatic conditions.

Based on the survey of managers of agricultural enterprises about the most important components of socio-economic development it was found: socio-economic system of enterprise development (35%), technical and technological system (30%) and information system (25%) (Fig. 1).



**Figure 1. Components of the system of socio-economic development of agricultural enterprises in Kharkiv region on the cultivation of high labor-intensive crops, %**

*Source: calculated by the author according to the reporting of enterprises.*

It is established that the achievement of effective management of enterprise development should be subordinated to the management of influence factors and vulnerability, which is based on planning the emergence of likely factors in the process of innovation; implementation of measures to eliminate the negative consequences arising from the manifestation of the influence factor or minimize the factor itself.

Improvement of methods to assess the management systems of influencing factors and their direct consequences on the socio-economic development of the enterprise based on the recommended management algorithm and acclimatized approach SWOT-analysis, factor analysis allowed to identify strengths and weaknesses, opportunities and challenges, relationships and interdependencies, which in turn serves as a system of indicators of development of the enterprise as a whole and in its components.

Using methods of mathematical analysis, which are based on the calculation of the system of indicators of agricultural entrepreneurship, including: total profitability, return on assets, production funds and sold products; the coefficient of the mass of profit per crop, including highly labor-intensive,

assessment and analysis of financial and production condition of agricultural enterprises in Kharkiv region in 2016–2020 were conducted (Table 1).

The practical implementation of the management mechanism of sustainable development of agricultural enterprises, according to the authors, takes the form of a strategy, the implementation of which requires appropriate models, among which the work highlights models of innovative, adaptive, evolutionary and revolutionary development. While earlier the most appropriate models of active and passive development were considered, now, given the instability of the economic situation and the need for a rapid transition to a certain level of profitability, the authors propose models of evolutionary and revolutionary development.

### **Part 3. Models for managing the sustainable development of agricultural enterprises**

The model of revolutionary development allows to quickly reach an appropriate level of efficiency without stimulating foreign investment in order to further innovate in environmentally friendly production [22]. These models are aimed at obtaining high profits from the production and marketing activities of agricultural enterprises in the agricultural market. Given that the strategic management of the sustainable development of the enterprise is considered as the creation of conditions for quantitative and qualitative development and coordination of measures aimed at preventive action in the formation and elimination of contradictions between the economic, social and environmental components that arise in the internal environment under the influence of the external, the strategic development of the enterprise is a complex multifaceted and multidimensional phenomenon [26].

In this case, the allocation of different types and types of such strategies, depending on the need to obtain the appropriate results of the enterprise in the market can be quite broad and take into account a large number of indicators and points of view.

According to scientists studying the problems of adaptive management of the enterprise, its peculiarity is an extremely high level of flexibility, innovation, ability to adapt to changing conditions with the adjustment of plans and activity models depending on the ultimate goal using new tools and management methods. In adaptive management, it is extremely important to accumulate information about the objects and subjects of management, providing a competency-based approach to enterprise management, self-organization and coordination of internal economic processes [27; 28]. According to the authors, the mechanism of adaptive management of agricultural enterprises requires conceptual improvement by supplementing its technological component and the ability of the enterprise to adapt to changing climatic conditions with the adjustment of current and operational plans using the principles, methods and tools of adaptive agriculture [29; 30]. Thus, the



agricultural enterprise is a holistic system functioning on the principles of self-organization, emergence, flexibility and adaptability [29].

Table 1

**Financial and economic condition of individual enterprises-producers of agricultural products in Kharkiv region in 2016–2020**

Indexes	Agricultural enterprises			
	PA "Vatal"	KDSS IS NAAS	ALLC "Slavutich"	SE DG "Parkhomivske" IVM NAASU
The level of profitability of the enterprise, %	52,72	14,97	12,98	32,56
Return on assets, %	38,78	7,19	7,16	18,76
Profitability level of production assets, %	110,52	29,84	18,66	35,12
The level of profitability of sold products, %	28,66	115,02	113	6,9
Weighted coefficient of profit per hectare of wheat crops	8,08	6,48	13,06	5,52
Weighted profit factor per hectare of sunflower crops	13,38	8,4	16,38	7,28
Weight coefficient of profit per hectare of soybean crops	3,01	5,02	18,4	7,82
The coefficient of the mass of profit per hectare of cultivation of fruits of cereals and stone fruits	45,55	22,04	-	-
Weighted coefficient of profit per hectare of berry production	166,04	44,68	-	-
Profit factor per hectare of vegetable and melon crops	-	-	-	4

*Source: calculated by the author according to the reporting of enterprises*

Technologies of adaptive agriculture allow to use the adaptive potential of plants, which by species and varietal-hybrid characteristics are more effectively adapted to growing in a particular area with certain temperature and other climatic characteristics. Thus, the ecological component of sustainable development management is implemented, which technically and technologically corresponds to the minimum technogenic impact on the environment. The principles of adaptive agriculture best relate to the organic production of high labor-intensive crops. Their high profitability, biodiversity and traditionally high demand ensure stable profits and compensation in lean years. Socio-economic issues are logically solved on the basis of diversification of production and expansion of the range of products at the expense of employment of the unemployed population of working age. It is traditionally

believed that growing vegetables and berries in protected areas is too difficult, expensive and risky, but, according to the authors, such diversification will solve social issues both at the enterprise level and at the local one. Profitable operation of such an enterprise within the united territorial community will allow the use of funds for the development of social infrastructure of the rural settlement.

As for the environmental component of the sustainable development management mechanism, in agricultural production it is advisable to use the index of environmental safety, which we propose to define as the ratio of man-made energy consumption, which is the limit of environmental safety and is equal to 20 GJ per 1 ha of crops, man-made energy consumption for growing crops (standard indicator) or the real costs of energy production per 1 ha. Beyond the boundary there is an irreversible impact on the ecological state of the environment or there is a bifurcation point. Therefore, if the index of environmental safety, which is calculated in this way, is equal to 1, then agricultural production occurs under conditions of instability and a high probability of transition into the zone of environmental hazards. The energy efficiency indicator, which is traditionally used in the energy assessment of production processes, combined with the previous allows a more thorough approach to solving the problems of energy conservation and adaptive development of agricultural entrepreneurship. This is all the more relevant because energy efficiency shows the level of energy conservation, the excess of energy received in the form of crops over the energy consumed in the production process. The introduction of a comprehensive indicator (determined by multiplying the indicator of environmental safety and energy efficiency) in the practical plane of management of agricultural enterprises makes it possible to assess the level of environmental friendliness and adaptability of the production potential. Therefore, the indicator of environmental-energy efficiency proposed in the study can be used by us when making decisions about the introduction of new technologies in production and marketing activities. On the other hand, the production of high labor-intensive crops allows not only to solve the problem of employment in a particular rural area, but also to create conditions for further socioeconomic region.

The calculated value of the ecological efficiency of agricultural production for enterprises-producers of vegetable products in Kharkiv region indicates a significant exceeding of the ecological limit of 13–25%: for ALLC «Dovzhik» (Agricultural Limited Liability Company) it was equal to 0,885, for Agrocomplex «Vityaz» – 0,769, for LLC «Jupiter (Limited Liability Company) – 0,699», for LLC «Kharkiv Vegetable Factory» and LLC «Zmiiv Vegetable Factory» – did not even reach the level of 0,6. This is due to the excessive use of chemicals (pesticides and fertilizers) and heavy powerful machinery. Organic technologies for the production of highly labor-intensive agricultural products tend to be energy-saving and are designed for a much lower level of anthropogenic costs compared to those of anthropogenic nature.

Most of the technological operations or even technological processes take place manually. The experience of organic vegetable producers proves the possibility of their effective functioning through the introduction of adaptive principles of production and energy saving. And the use of high-yielding varieties and hybrids of vegetable crops of different species within their zonal specialization contributes not only to the formation of competitive advantages by providing the market with rare crops and application of appropriate strategies of market behavior, but also to the development of adaptive agriculture.

Thus, three types of strategies and four models of their implementation are proposed to manage the sustainable development of agricultural enterprises. These models of strategies take into account the features and specifics of the highly labor-intensive industries of crop production on an organic basis (Table 2, 3).

Table 2

**Modeling strategies for managing the sustainable development of agricultural enterprises**

<b>Sustainable development management strategy</b>	<b>Strategy implementation model</b>	
	<b>Innovative</b>	<b>Adaptive</b>
Sales	Implementation of selection, biological, management and trade innovations to expand the assortment in the prepared market segment.	Range expansion, flexible pricing policy, specialized sales channels, individual approach, formation and use of adaptive skills of employees and consumers.
Production	Technical and technological, chemical, selection innovations for the intensification of production.	Formation and use of adaptive skills in employees and production technologies to work in a rapidly changing environment.
Combined	Comprehensive implementation of innovations with constant monitoring of the market, extensive investment attraction.	Formation of adaptive skills and their use in production and marketing activities, management, etc.

*Source: developed by the authors*

Thus, a sales-focused performance management strategy consists of extensive use of various marketing innovations from gradual market expansion to radical changes in the product range and aggressive marketing.

Modeling production strategy, according to the authors, can range from the introduction of certain innovations of technical and technological type with the diversification of production and the formation of adaptive skills of staff to the transition to innovative technologies.

Models for the implementation of a combined strategy as the best option for the studied enterprises are based on the gradual improvement of technology and innovation, including the management of production and marketing activities to work in the absence of demand.

The paper considers that the best option for sustainable development management strategy of agricultural enterprises is an innovative and adaptive model of combined strategy.

The absence of practical recommendations in foreign scientific works on the implementation of adaptive development strategy, taking into account the specifics of the sectoral development of agricultural enterprises, indicates the conclusion that the proposed approach to adaptive management as a flexible management system, which must constantly adapt to current circumstances.

Instead, research is conducted on the evolutionary formation of the concept of "adaptive management" in the context of its relationship with the action of internal and external factors, the search for alternatives [22].

Table 3

**Modeling moderate and radical strategies  
for managing the sustainable development of agricultural enterprises**

Sustainable development management strategy	Strategy implementation model	
	Evolutionary	Revolutionary
Sales	Orientation on the local sales market, traditional methods of sales and distribution channels, gradual market expansion through the improvement of sales methods and the choice of distribution channels, assortment, simultaneous impact on the market segment and demand.	Cardinal changes in the range of products, the transition to the latest marketing technologies (aggressive marketing).
Production	Diversification of production, continuous improvement of production technologies on the basis of available experience in order to reduce costs ("following the leader").	Transition to innovative technologies and products.
Combined	Improvement of technology, extension of assortment with the expansion of the sales market.	Production of innovative products for an unformed market.

*Source: developed by the authors*

A step-by-step plan for developing and implementing an adaptive management program was proposed, the most interesting of which is the stage of summarizing information about previous successes and failures of enterprise management. M.A. Vivdenko calls one of the goals of management the

reduction of uncertainty through training and gaining experience, and Ya.B. Sikora considers adaptive technologies as tools for training specialists in adaptive management [31]. The authors believe that an adaptive model of production strategy should include adaptive skills of employees, which requires them to work on themselves and consciously or thoughtfully build a strategy of behavior in the face of uncertainty and risk.

### **Conclusions**

Given the relationship of sustainable development with the need to form and effective functioning of the management model development of agricultural enterprises, the authors' vision of the theoretical and methodological and practical issues of formation and implementation of management models for the development of agricultural enterprises based on adjusting their specialization towards increasing the share of areas under high intensity crops, the gradual transition to organic production and changes in business activity was proposed.

The methodological approach improved in the work to determine the criteria of efficiency and effectiveness of such subjects, taking into account the economic, social, environmental and energy components allows a comprehensive approach to determining the limit of bifurcation in the agroecological system with a sufficient level of profitability for expanded reproduction.

The paper considers that it is the innovation-adaptive model of implementation of the combined strategy of sustainable development management with the adjustment of agricultural enterprises specialization in the cultivation of highly labor-intensive crops allows them to function effectively in conditions of uncertainty and risk.

Further research of the authors will be brought to proposals at the level of a particular region to stabilize socio-economic processes and the development of rural areas.

### **References:**

1. Vatchenko, O. B., & Ilchenko, V. M. (2011). Vynyknennia ta analiz poniattia «stalyi rozvytok». *Visnyk DDFA: Ekonomichni nauky*, (1), 64–88.
2. Sokil, O., Zhuk, V. & Vasa, L. (2018). Integral assessment of the sustainable development of agriculture in Ukraine. *Economic Annals-XXI*, 170(3–4), 15–21. DOI: <https://doi.org/10.21003/ea.V170-03>
3. Azar, C., Holmberg, J. & Lindgren, K. (1996). Socio-ecological Indicators of Sustainability. *Ecological Economics*, 18(2), 89–112. DOI: [https://doi.org/10.1016/0921-8009\(96\)00028-6](https://doi.org/10.1016/0921-8009(96)00028-6)
4. Food and Agriculture Organization of the United Nations. (2018). Sustainable Development Goals. Available at: <http://www.fao.org/sustainable-development-goals/overview/en>.
5. Blagoev Munin, G., Zinoviev, G. (2003). Approaches to work out a strategy of sustainable development for Ukrainian towns. *Economic Annals-XXI*, (6), 22–28.

6. Waas, T., Hugé, J., Block, T., Wright, T., Benitez-Capistros, F., & Verbruggen, A. (2014). Sustainability assessment and indicators: Tools in a decision-making strategy for sustainable development. *Sustainability*, 6(9), 5512–5534. DOI: <https://doi.org/10.3390/su6095512>.
7. Borshchuk, Ye. M. (2007). *Osnovy teorii stiikoho rozvytku ekoloho-ekonomichnykh system: monohrafiia*. Lviv: Rastr-7.
8. Holubets, M. A. (2006). Rozvytok «stalyi» chy «zbalansovanyi». *Ukrainskyi heohrafichnyi zhurnal*, (2), 66–69.
9. Nazarov, V. Y. (2008). Ustoichyvoe razvytye – budushchee chelovechestva. *Nauka ta naukoznavstvo*, (3), 20–27.
10. Melnyk, L. H. (2005). *Osnovy stiikoho rozvytku: navchalnyi posibnyk*. Sumy: VTD «Universytetska knyha.
11. Artemenko, V. B. (2006). Indykatory stiikoho sotsialno-ekonomichnoho rozvytku rehioniv. *Rehionalna ekonomika*, (2), 90–97.
12. Bystriakov, I. K. (2012). Stalyi rozvytok Ukrainy: postmodernizm, prostir, metodolohiia upravlinnia. *Visnyk NAN Ukrainy*, (7).
13. Trofymova, V. V. (2010). Kontsepsiia staloho rozvytku yak osnova postindustrialnykh modelei rozvytku. *Investysii: praktyka ta dosvid*, (8), 33–37.
14. Khvesyk, M., & Bystriakov, I. (2012). Paradyhmalnyi pohliad na kontsept staloho rozvytku Ukrainy. *Ekonomika Ukrainy*, (6), 4–12.
15. Honcharenko, M. V. (2014). Teoretychni zasady staloho rozvytku terytorii. *Teoriia ta praktyka derzhavnoho upravlinnia*, (1), 190–198.
16. Shubravska, O. (2005). Stalyi ekonomichnyi rozvytok: poniattia i napriam doslidzhen. *Ekonomika Ukrainy*, (1), 36–42.
17. Pradun, V. P. (2005). *Ekonomiko-ekolohichni osnovy staloho rozvytku rehionalnykh ahropromyslovykh kompleksiv*. Avtoref. dys. na zdobuttia nauk. stupenia dokt. ekon. nauk.: spets. 08.07.02. Kyiv: NAN Ukrainy. Ob'iedn. in-t ekonomiky.
18. Kotykova, O. I. (2007). Zmist poniattia staloho rozvytku. *Naukovyi visnyk Volynskoho derzhavnoho universytetu im. L. Ukrainky*, (12), 170–174.
19. Shevchuk, V. & Korniiichuk L. (2009). Stalyi rozvytok i hlobalna misiia Ukrainy. *Ekonomika Ukrainy*, (4), 4–13.
20. Verhun, A. M., & Tarasenko, I. O. (2014). Kontsepsiia staloho rozvytku v umovakh hlobalizatsii. *Visnyk KNUTD*, (2), 207–218.
21. Lopatynskyyi, Yu. M., & Todoriuk, S. I. (2015). Determinanty staloho rozvytku ahrarynykh pidpriemstv: monohrafiia. Chernivtsi: Chernivetskyi nats. un-t.
22. Levkina, R. V. (2013). *Stratehichne upravlinnia vyrobnychoiu diialnistiu pidpriemstv ovochivnytstva: teoriia, metodolohiia, praktyka: monohrafiia*. Kherson: Hryn.
23. Levkina, R. V. & Kotko, Ya. M. (2018). Sotsialna orientatsiia motyvatsiinoho mekhanizmu sub'ektiv ahrarynoho biznesu. *Visnyk KhNTUSH: Ekonomichni nauky*, (191), 51–59.
24. Levkina, R. & Petrenko, A. (2019). Management of innovative marketing techniques as an effective business tool. *Agricultural and Resource Economics – International Scientific e-Journal*, 9 (1), 37–47. DOI: <https://doi.org/10.22004/ag.econ.287141>.
25. Levkina, R. V., Kravchuk, I. I., Sakhno, I. V., Kramarenko, K. M., & Shevchenko, A. A. (2019). The economic-mathematical model of risk analysis in agriculture in conditions of uncertainty. *Financial and credit activity: problems of theory and practice*, 3(30), 248–255. DOI: <https://doi.org/10.18371/fcaptp.v3i30.179560>.
26. Pashchenko, O. P. (2011). Stratehichne upravlinnia rozvytkom pidpriemstva. *Visnyk KhNU*, 2(2), 99–103.
27. Aref'ieva, O. V., & Vovk, O. M. (2020.) *Ad.aptyvne upravlinnia pidpriemstvamy v umovakh neotekhnolohichnoho vidtvorennia: monohrafiia*. Kyiv: NAU.

28. Tokmakova, I. V. & Lytvynova, T. S. (2015). Adaptivne upravlinnia rozvytkom vitchyznianskykh pidpriemstv. *Visnyk ekonomiky transportu i promyslovosti*, (49), 212–216.
29. Levkina, R. V. (2014). Theoretical framework formation and functioning organizational and economic mechanism of management efficiency of the agricultural enterprise. *Sozial-wirtschaftliche Transformationen in den europäischen Länder: Monografie*. Edited by Yu. V. Pasichnyk. Deutschland, Nürnberg: Verlag SWG imex GmbH, 146–158.
30. Hudz, V. P., & Shuvar, I. A. (2014). Adaptivni systemy zemlerobstva. Ahrobiolohichna otsinka silskohospodarskykh kultur. Kyiv: Tsentri uchbovoi literatury.
31. Vivdenko M. A. (2016). Kliuchi do uspishnoho adaptivnoho upravlinnia pidpriemstvom. *Naukovyi visnyk KhDU*, 17(1). 54–57.