

Part 1. INNOVATIVE TOOLS THAT DEVELOP SOCIO-ECONOMIC SYSTEMS

1.1. DEVELOPMENT OF AGRIBUSINESS OF UKRAINE: AN INNOVATIVE ASPECT*

The current state of the Ukrainian economy, a significant part of which belongs to the agrarian sector, depends on precise estimation, forecasting, effective planning and management of the agribusiness enterprises. Implementation of state acts and regulations, in particular, the State Target Economic Program for the introduction of the latest agricultural technologies in agribusiness, Ukraine-2020 Sustainable Development Strategy, which includes the Program for the Development of Innovations, calls on the agribusiness enterprises to improve their organizational and managerial activities through the implementation and rational management of innovation processes (IP): This is particularly about the processing enterprises, as the agricultural products sector accounts for a significant part of all agribusiness production. Thus, out of UAH 370.8 billion of agricultural production in 2018, more than 230 billion UAH came from processing enterprises. The share of the processing industry of the agribusiness of Ukraine tends to increase in the total volume of exports. The gross value-added associated with the production of agricultural raw materials is not less than 10% and is one of the largest indicators in the structure of Ukraine's GDP. However, in the field of agro-processing, indicators of gross value added are the smallest – about one percent in the structure of GDP, which indicates the significant export potential of Ukraine due to the development of agro-processing enterprises of agribusiness.

This task became particularly relevant after the ratification of the Association Agreement between Ukraine and the European Union with the postponement of the EU-Ukraine Free Trade Area. The EU regulations, directives, decisions and recommendations contained in the annexes to the Agreement are part of the legal standards to be fulfilled by the Ukrainian party. They also urge the processing enterprises of agribusiness to produce innovative products with high-quality consumer characteristics, to use innovative technologies for in-depth processing of agricultural raw materials and their storage, other elements of the IP. The implementation of the requirements for bringing the domestic agrarian business to a higher level, in particular, European standards, stabilizing and developing the agricultural production, requires the development of innovation activity (IA) in the processing industry, and the formation of new approaches and mechanisms for its implementation.

The effective solution of the associated tasks in the rapidly changing economic, social, and political environment requires the use of analytical methods in the management of innovation processes of processing enterprises (MIPE) based on the tools of economic and mathematical modeling taking into account the features of agro-processing production. R. Bellman, V.M. Glushkov, O.G. Granberg, V.A. Zabrodsky, M. Intryligator, R. Kalaba, L.V. Kantorovich, A.V. Lotov, A.A. Pervozvansky, O.I. Propoy, O.M. Ter-Krykorov, and many other scholars studied the issues of economic and mathematical modeling and optimal control in economics. The proceeding and deeper insight into the study of modeling the economy, considering the risks in economic activities under modern conditions, were reflected in the works of such scholars as V.V. Vitlinsky, V.M. Vovk, V.M. Heyets, P.M. Hrygoruk, M.O. Kyzym, T.S. Klebanova, Yu.G. Lysenko, L.M. Malyarets, O.I. Pushkar, O.V. Rayevnyeva, V.V. Khristianovsky, O.I. Chernyak, A.F. Shorikov etc.

Multidimensional research on modeling in agrarian economics was carried out by N.K. Vasiliev, P.M. Hrytsyuk, M.F. Kropivko, S.I. Nakonechny, O.V. Ulyanchenko, S.V. Tsyupko, V.V. Chepurko, and other leading scholars. The research of theoretical and methodological aspects of the issues of modern innovative development of enterprises, its investment support are highlighted in numerous works of such scientists as R. Amit, O.I. Amosha, V.M. Grinova, M.

* The article is executed in the framework of research work on the topic «Agricultural production competitiveness management systems in the terms globalization of agricultural markets» № 0119U001387.

Johnson, S. Zott, Yu.B. Ivanov, S.M. Ilyashenko, T.I. Lepekiko, L. Massa, R.A. Fathutdynov, P.G. Pererva, V. Seizin, D. Tis, H. Chesbaugh, O.M. Yastremskaya, etc.

However, despite different research, the issue of IA management in the process of dynamic development of agribusiness cannot be considered fully grounded and adapted without an in-depth analysis of production programs at all stages of the IP introduction into the productive work. Several practical issues should also be solved. The issues are related to the program implementation of the relevant models of MIPE in agribusiness in the form of the system of information support (SIS) and the peculiarity of their implementation, which will increase the efficiency of decision-making in the IA of agro-industrial enterprises. Thus, despite the diversity of work on the management of IAs, available economic and mathematical models and methods, modeling in the MIPE and the use of information technology for its implementation in the activities of processing enterprises of agribusiness is an important scientific issue and needs further research.

Domestic agrarian processing industry has a significant innovative potential that is capable of ensuring a high level of scientific and technological development of Ukraine. At the same time, the prevailing sources of growth in the agribusiness processing industry are the reserves of production capacities and the foreign economic environment favorable for the export of agricultural raw materials. Keeping current tendencies in the agribusiness sector, which are based on the low-tech production, as well as the ongoing decline of production in agribusiness proves the necessity of applying scientific approaches to the introduction and management of IP in agribusiness¹. At present, one of the priorities of the state policy is to modernize the national industry in general, as well as its processing industry, based on IP activation, to use its powerful scientific and technological potential efficiently. Currently, we need to implement comprehensive measures to support the IA of domestic enterprises, including processing enterprises of agribusiness, at all stages of IP, to stimulate the demand for the results of scientific research and innovative development, to provide qualified personnel, and to create favorable conditions for the production of innovation products with a high rate of value-added.

This issue is also relevant to the world community. The development of an IA in the economic development of any country is important. Thus, in 1977, the special commission of the Senate of the United States made conclusions about the prospects for the development of science and technology, which should be preferred to any other component of the national policy or the national programs². In the leading countries, the development and implementation of technological innovation as a decisive factor in social and economic development is the guarantee of economic security. For example, in the United States, the growth of national income per capita due to this factor in recent years is up to 90%³. Thus, in today's world, the level of the IA becomes decisive in determining the level of the state's economy. In January 2003, in Helsinki, a round table discussion «Science, Technology, and Innovation Policy: Parliamentary Perspectives» initiated by the Finnish Parliament, as well as UNESCO and ISESCO was held at the international level with the participation of the parliaments of Europe, Asia, Africa, and America. As a result, the participants approved the Helsinki Declaration, which is an appeal to world parliamentarians. This Declaration states that the future development of the global economy is increasingly dependent on the international development of the IA and the continuous improvement of its quality, efficiency, and adequacy. The main criterion for success is determined by the development of national innovation systems, the validity of the implementation of innovation policy at the regional and local levels.

Ukraine, according to the Helsinki Declaration, had to decide on the prospects of innovation development, taking into account their competitiveness. Thus, the Verkhovna Rada of Ukraine⁴

¹ Babenko, V.O. (2014): Upravlinnia innovatsiinymy protsesamy pererobnykh pidpriemstv APK (matematychno modeliuвання ta informatsiini tekhnolohii): monohrafiia. [Management of innovative processes of agro-industrial enterprises (mathematical modeling and information technologies): monograph]. Kharkiv: KhNAU, 380 p.

² Science and Technology. U. S. Department of State. Retrieved from <http://www.state.gov>.

³ Science and Technology. U. S. Department of State. Retrieved from <http://www.state.gov>.

⁴ Postanova Verkhovnoi Rady Ukrainy Pro provedennia parlamentskykh slukhan na temu: «Ekonomichna polityka Ukrainy: aktualni pytannia» vid 18.03.2004 r. № 1615-IV. Retrieved from <https://zakon.rada.gov.ua/laws/show/1615-iv>.

approved the recommendations of the parliamentary hearings «Economic Policy of Ukraine: Current Issues», which determined that the priority task of the economic policy focused on long-term internal factors of growth is the formation of an innovation-investment model of the development. Among other things, this is one of the most important tasks.

Recently, some labor-intensive and technologically outdated productions, which pollute the environment, need reconstruction. Besides, the crisis and competition in the international and domestic markets of agricultural production are aggravated. This requires more attention of managers of agricultural processing enterprises, agricultural holdings and other agricultural enterprises to the IA because its results can enable to produce products that would meet growing competitive demand on the market and provided a fairly high level of profits for agricultural producers¹. In addition, the requirement to increase the efficiency of the use of investment resources, as well as the desire to obtain high profits, encourages the processing industries to develop an IA that needs the acceleration and effective management of IP in agribusiness, in the processing industry in particular. In Ukraine, the development of enterprises' IAs in different periods tended to grow as well as decline, but in recent years, there has been an increase in the share of processing and industrial enterprises that introduced innovations in their activities².

Important strategic directions for the development of the agricultural processing sector are the introduction of IP that allow for the sustainable restoration of production based on the development of scientific and technological achievements, and is to focus the development of processing enterprises of agribusiness on the activation of the IA and is based on an innovative approach³. The innovative approach is referred to as an approach for the use of new technologies to allow the production of knowledge-intensive high-tech production of management that ensures the production efficiency⁴.

To achieve the competitiveness of the Ukrainian economy, where the competitiveness of domestic enterprises' goods and services in the domestic and foreign markets plays a special role, is one of the main tasks of economic science. An important element of competitiveness is innovation, which recently has become crucial for the development of agrarian production in the social system, based on the acquired knowledge and information resources. An increasing degree of openness of the Ukrainian economy and the strengthening of integration processes in the world economy to overcome food insecurity requires adequate responses from Ukrainian agro-processing enterprises.

Dealing with the food security problem in Ukraine is a national task that is directly related to the development of the IA of agribusiness^{5,6,7}. Ukraine has long since declared its determination for an innovative way of development. To implement this program, a large number of legislative and regulatory documents have been approved, specialists are actively working on the issue of reorganization in government bodies, hold conferences, forums, and public discussions, consider

¹ Rozporiadzhennia Kabinetu Ministriv Ukrainy Pro skhvalennia Kontseptsii Derzhavnoi tsilovoi ekonomichnoi prohramy vprovadzhennia v ahropromyslovomu kompleksi novitnikh tekhnolohii vyrobnytstva silskohospodarskoi produktsii na period do 2016 roku vid 23.12.2009 r. № 1650. Retrieved from <https://zakon.rada.gov.ua/laws/show/1650-2009-%D1%80>.

² Ukraine in Figures: statistical publication / State Statistics Service of Ukraine. K.: «Avgust Trade», Ltd. 2018. K., 2019. 241 p. .

³ Babenko, V.A. (2012): Aspekty upravleniya innovatsionnymi tekhnologiyami v sfere pererabotki produktsii sel'skokhozyaystvennogo proizvodstva [Aspects of the management of innovative technologies in the processing of agricultural products]. Innovatsiini tekhnolohii v kharchovii promyslovosti ta restorannomu gospodarstvi: mizhnar. nauk.-prakt. internet-konf (m. Kharkiv, 14-16 lystop. 2012 r.) / redkol.: O. I. Cherevko [ta in.]. Kharkiv: Khark. derzh. un-t kharchuvannia ta torhivli. pp. 141-144.

⁴ Babenko, V.A. (2013): Formirovanie dinamicheskoy modeli mnogokriterial'noy optimizatsii upravleniya innovatsionnymi protsessami pererabatyvayushchikh predpriyatiy APK [Formation of a dynamic model of multi-criteria optimization of management of innovative processes of processing enterprises of the agro-industrial complex]. Biznes Inform [Business-Inform]. № 7. pp. 85-88.

⁵ Zakon Ukrainy Pro natsionalnu bezpeku Ukrainy vid 21.06.2018 r. № 2469-VIII. Retrieved from <https://zakon.rada.gov.ua/laws/show/2469-19#n355>.

⁶ Postanova Verkhovnoi Rady Ukrainy Pro pryiniattia za osnovu proektu Zakonu Ukrainy pro prodovolchu bezpeku Ukrainy vid 14.06.2011 r. № 3498-VI. Retrieved from http://w1.c1.rada.gov.ua/pls/zweb_n/webproc4_2?pf3516=8370-1&skl=7.

⁷ Ukaz Prezydenta Ukrainy Pro rishennia Rady natsionalnoi bezpeky i oborony Ukrainy vid 09.12.2005 r. «Pro stan ahropromyslovoho kompleksu ta zakhody shchodo zabezpechennia prodovolchoi bezpeky Ukrainy» vid 28.12.2005 r. № 1867/2005. Retrieved from <https://zakon.rada.gov.ua/laws/show/1867/2005/print>.

the problems of innovations in numerous publications. However, the main thing is the launch of real innovative development mechanisms that will work in every sector of the national economy, taking into account national priorities and trends in world development of scientific and technological progress¹. According to the latest legislative acts, the task of the Government of Ukraine was «to transform the agribusiness of Ukraine into a highly competitive sector of economy competitive in the domestic and foreign markets»².

To support the state intentions, the Cabinet of Ministers of Ukraine approved the Strategy for Sustainable Development Ukraine-2020³. This document proclaims the general provisions and declares the basic strategy of scientific and technical development of the branches of agro-industrial production. The necessity of the Strategy development is due to «the problem of a clear definition of the conceptual foundations of the state scientific and technical policy regarding the transfer of agricultural production sectors to an innovative model of development, sustainable competitive production of knowledge-based agro-industrial products». The legal basis for the formation and implementation of the priority directions of the IA is the Constitution of Ukraine, the Laws of Ukraine On research and scientific and technical activity, On state forecasting and development of the programs of economic and social development of Ukraine, On innovation activity, On priority directions of science and technology development, On investment activity, Concept of scientific, technological and innovation development of Ukraine and other legislative acts of Ukraine.

The Verkhovna Rada of Ukraine referred to high-tech development of agriculture and processing industry in Ukraine for 2003-2015 as the nation-wide strategic priority direction of the IA. Thus, the main purpose of reforming the agribusiness as a component of Ukraine's economy is to transform it into a highly effective, competitive sector of the national economy competitive in the domestic and foreign markets, which also requires the state involvement in supporting the IP in the agrarian sector of the Ukrainian economy⁴.

Today, the share of exports of metals, minerals and chemical products in the structure of Ukraine's exports accounts for about 60% of its volume, which suggests that the gross domestic product (GDP) of the country largely depends on fluctuations in the world prices for metals, minerals, etc. To increase the level of GDP, it is necessary to diversify the exported products, which relate mainly to the agribusiness of the country. Besides, according to the estimates by the FAO (Food and Agriculture Organization of UN): by 2050, the world population is expected to reach 9.1 billion. Population growth will come mainly from developing countries with accelerated urbanization, which will lead to an increased demand for food⁵. The global challenge for the processing industry of agribusiness in terms of constant population growth is to increase production by at least 70%. This was stated by Jean-Jacques Hervé, an Advisor to Credit Agricole, PJSC, during a round table discussion «Implementing new technologies: challenges for Ukrainian companies»⁶.

At the opening of the International Investment Forum in Kirovograd, which took place on October 2013, it was pointed out that the agricultural sector forms a large part of the GDP of the country, and the uniqueness of the resource base of the industry creates the virtually unlimited potential for its economic growth. It was also noted that agrarian production is one of the priority

¹ Zakon Ukrainy Pro osnovni zasady derzhavnoi ahrarnoi polityky na period do 2015 roku vid 18.10.2005 r. № 2982-IV. Retrieved from <https://zakon.rada.gov.ua/laws/show/2982-15>.

² Zakon Ukrainy Pro osnovni zasady derzhavnoi ahrarnoi polityky na period do 2015 roku vid 18.10.2005 r. № 2982-IV. Retrieved from <https://zakon.rada.gov.ua/laws/show/2982-15>.

³ Rozporiadzhennia Kabinetu Ministriv Ukrainy Pro zatverdzhennia planu zakhodiv z vykonannia Prohramy diialnosti Kabinetu Ministriv Ukrainy ta Stratehii staloho rozvytku «Ukraina-2020» u 2015 rotsi vid 04.03.2015 r. № 213-r. Retrieved from <http://zakon3.rada.gov.ua/laws/show/213-2015-r/ed20150304>.

⁴ Uriadovyi portal. Yedynyi veb-portal orhaniv vykonavchoi vlady Ukrainy. Retrieved from <http://www.kmu.gov.ua/control>.

⁵ Agrarnyy sektor Ukrainy: investitsionnaya privlekatel'nost', nesmotrya na nesovershennoye regulirovaniye. IFC (Mezhdunarodnaya finansovaya korporatsiya): APK-inform. 2017. Retrieved from <http://www.apk-inform.com>.

⁶ Vnedreniye novykh tekhnologiy: vyzovy dlya ukrainskikh kompaniy: materialy kruglogo stola. Agrokholding «KHarmeliya». 2017, 29 iyulya. Retrieved from <http://http://www.harmelia.com/2017/07/29>.

issues in terms of investing¹. Concurrently, Ukraine has a huge agrarian potential: black earth, convenient geographical position in the export markets, deep-sea ports, developed infrastructure, which is a large and powerful basis for the development of a competitive agrarian sector, including its processing sub-sector, which is one of the sources of the economy's growth and development and raising the standard of living of the country's population.

To substantiate the relationship between the component of processing enterprises' production of the main types of products and the availability of agricultural raw materials, the factor of seasonality concerning the raw materials of plant production was taken into account. Based on the statistical information², the volumes of production of the main types of products of processing enterprises of agribusiness on the basis of crop raw materials in the period of 2014-2018 in monthly terms (fig. 1) were collected, as well as available volumes of corresponding types of agricultural raw materials of crop production for the same period (fig. 2):

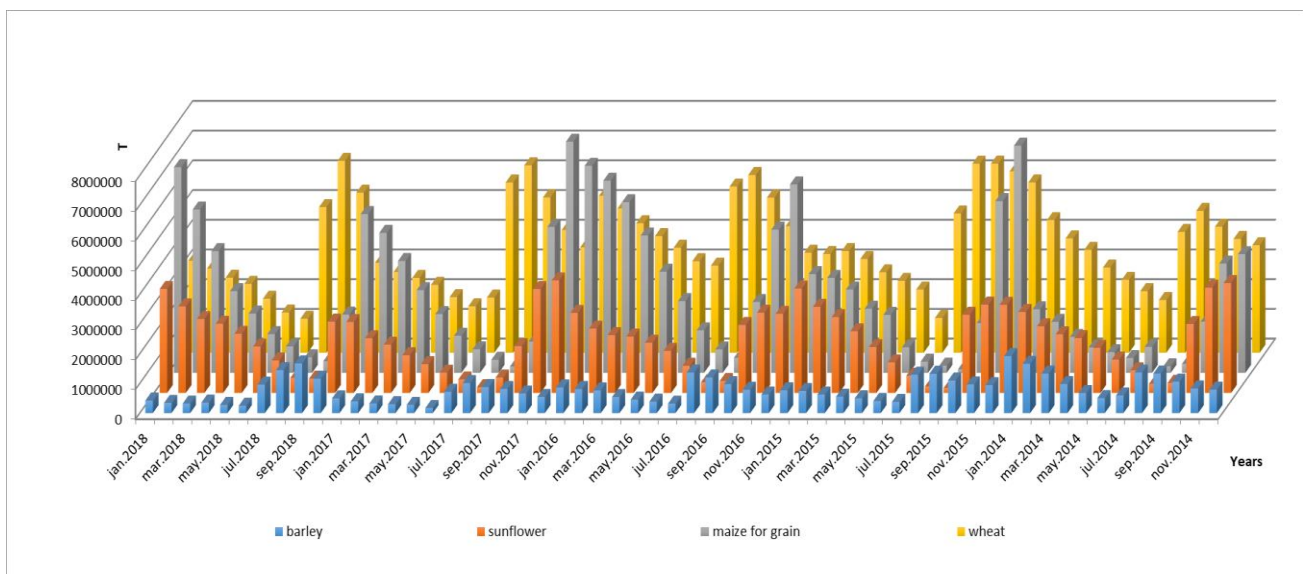


Fig. 1. Dynamics of the availability of grain crops in the period 2014-2018 in the monthly cut

The input data for the analysis was the system of indicators of production of processing enterprises of agribusiness and agricultural enterprises, structured into two main components of production: production of the main types of products by processing enterprises of agribusiness on the basis of crop raw materials (margarine, spreads and food mixtures (v_1); sunflower oil unrefined (v_2); bread and bakery products (v_3); cocoa-free sugar confectionery (including white chocolate) (v_4); vodka, liqueurs and other alcoholic beverages, malt beer, except alcohol-free beer, and beer with an alcohol content of less than 0,5% (v_5)) and volumes of the main types of crop raw materials available for this production – grains (wheat, rye, millet, rice, buckwheat, and corn (in terms of grain): barley (including brewing); leguminous plants, oats, wicks, other grains) (z_1) and oilseeds (sunflower seeds, soybean, and rape) (z_2):

¹ Agrovypusk agrokholdinga «KHarmeliya». Agrokholding «KHarmeliya». 2017, 4 okt. Retrieved from <http://www.harmelia.com>.

² Ukraine in Figures: statistical publication / State Statistics Service of Ukraine. K.: «Av gust Trade», Ltd. 2018. K., 2019. 241 p. .

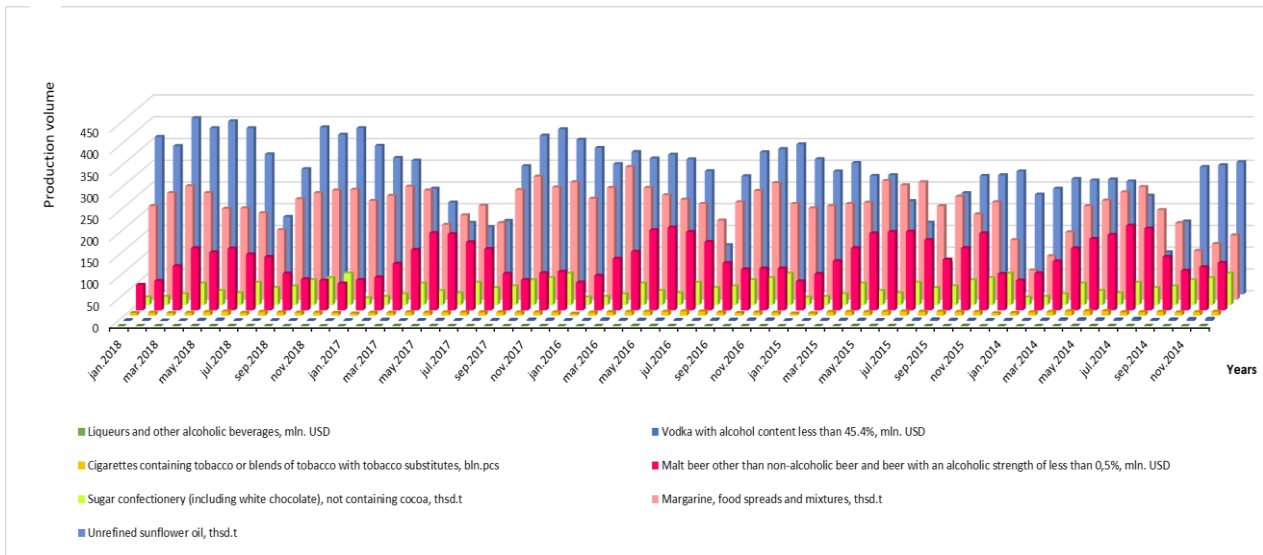


Fig. 2. Dynamics of production of processing enterprises of agribusiness in the period of 2014-2018 in monthly terms

Based on the grouped data, the canonical correlation procedure was performed¹. To solve this problem, the author used the *Statgraphics Centurion* package, the *Canonical Correlation* procedure. The construction of the model of the relationship between the component of the main production of processing enterprises of agribusiness on the basis of crop raw materials (v_1, \dots, v_5) and the availability of the main types of crop production (z_1, z_2) using canonical correlations is fulfilled. Thus, the model of the relationship between these constituents has the following form:

$$\begin{cases} U_1 = 0,014v_1 - 1,001v_2 + 0,238v_3 - 0,991v_4 - 0,150v_5 \\ V_1 = 1,339z_1 - 1,193z_2 \\ r_{u_1v_1} = 0,983 \end{cases}$$

The coefficients in the equations for the canonical variables U_1, V_1 characterize the effect of the initial values on these variables. This allows performing a ranking of signs by the power of their influence. Thus, the rating of the indexes by the influence of the first canonical variables U_1, V_1 in the relationship between the component of the main production of processing enterprises of agribusiness on the basis of crop raw materials (v_1, \dots, v_5) and the availability of the main types of plant products (z_1, z_2) has the form:

$$\begin{aligned} v_2 > v_4 > v_3 > v_5 > v_1 \\ z_1 > z_2. \end{aligned}$$

Another model of the relationship between the component of the main production of processing enterprises of agribusiness on the basis of crop raw materials (v_1, \dots, v_5) and the availability of the main types of plant products (z_1, z_2) is as follows:

$$\begin{cases} U_2 = 0,168v_1 + 0,541v_2 - 0,051v_3 - 0,443v_4 - 0,181v_5 \\ V_2 = 0,294z_1 + 0,770z_2 \\ r_{u_2v_2} = 0,888 \end{cases}$$

Analyzing the equation of the model, we obtain that the rating of the indicators by the force of influence on the canonical variables U_2, V_2 has the form:

$$\begin{aligned} v_2 > v_4 > v_5 > v_1 > v_3 \\ z_2 > z_1. \end{aligned}$$

¹ Babenko V.A. (2017): Modelling of factors affecting innovational agricultural activity of enterprises AIC in Ukraine. Scientific bulletin of Polissia, № 1 (9): P. 2, pp. 115-121. .

According to the rating of influence of the indicators on the first and second canonical variables U and V in the relationship between the production of the main types of products by the processing enterprises of agribusiness on the basis of crop raw materials and the availability of the main types of crop production, we obtain that the level of production at these enterprises is formed, first of all, due to the following kinds of products of processing enterprises: sunflower oil unrefined (v_2); vodka, liqueurs and other alcoholic beverages, malt beer, except for alcohol-free beer and beer with an alcohol content of less than 0,5% (v_4); bread and bakery products (v_5): and indicators (types of products) having a low rating by force of influence: cocoa-free sugar confectionery products (including white chocolate) (v_1); margarine, spreads and food mixtures (v_3): That is, the efficiency of production of processing enterprises is linearly connected with the volumes of the raw material base.

Consequently, the statistical tools analyzed in the form of canonical analysis of the relationship between the main components of the processing enterprises of agribusiness on the case of production of the main types of products from crop raw materials and the availability of plant products for it confirms the existence of a mechanism for their interconnection. A fairly significant level of correlation coefficient pairs (0.98 and 0.89) confirms that the interconnections of these factors are very close, which substantiates and confirms the risk factor for the availability of the resource component in the form of agricultural raw materials and the production of processing enterprises.

Thus, having obtained the results, on the basis of the toolset of economic and mathematical modeling, which is grounded on the processing of statistical information of retrospective nature, the evaluation of individual variables and their parameters, the interdependence of the most influential factors of agricultural production is found, and regression models of indicators of the most significant generalizing factors are calculated, characterizing the development of the agrarian potential of the Ukrainian economy. It is a practical toolset for making managerial decisions for forecasting tactical and strategic directions of development of agribusiness of Ukraine and the export of agricultural production to the global food commodity markets.

References:

1. Babenko, V.O. (2014): Upravlinnia innovatsiinymy protsesamy pererobnykh pidpriemstv APK (matematychni modeliuvannia ta informatsiini tekhnolohii): monohrafiia. [Management of innovative processes of agro-industrial enterprises (mathematical modeling and information technologies): monograph]. Kharkiv: KhNAU, 380 p.
2. Science and Technology. U. S. Department of State. Retrieved from <http://www.state.gov>.
3. Postanova Verkhovnoi Rady Ukrainy Pro provedennia parlamentskykh slukhan na temu: «Ekonomichna polityka Ukrainy: aktualni pytannia» vid 18.03.2004 r. № 1615-IV. Retrieved from <https://zakon.rada.gov.ua/laws/show/1615-iv>.
4. Rozporiadzhennia Kabinetu Ministriv Ukrainy Pro skhvalennia Kontseptsii Derzhavnoi tsilovoi ekonomichnoi prohramy vprovadzhennia v ahropromyslovomu kompleksi novitnikh tekhnolohii vyrobnytstva silskohospodarskoi produktsii na period do 2016 roku vid 23.12.2009 r. № 1650. Retrieved from <https://zakon.rada.gov.ua/laws/show/1650-2009-%D1%80>.
5. Ukraine in Figures: statistical publication / State Statistics Service of Ukraine. K.: «Avgust Trade», Ltd. 2018. K., 2019. 241 p.
6. Babenko, V.A. (2012): Aspekty upravleniya innovatsionnymi tekhnologiyami v sfere pererobky produktsii sel'skokhozyaystvennogo proizvodstva [Aspects of the management of innovative technologies in the processing of agricultural products]. Innovatsiini tekhnolohii v kharchovii promyslovosti ta restorannomu hospodarstvi: mizhnar. nauk.-prakt. internet-konf (m. Kharkiv, 14-16 lystop. 2012 r.) / redkol.: O.I. Cherevko [ta in.]. Kharkiv: Khark. derzh. un-t kharchuvannia ta torhivli. pp. 141-144.
7. Babenko, V.A. (2013): Formirovanie dinamicheskoy modeli mnogokriterial'noy optimizatsii upravleniya innovatsionnymi protsessami pererabatyvayushchikh predpriyatiy APK [Formation of a dynamic model of multi-criteria optimization of management of innovative

processes of processing enterprises of the agro-industrial complex]. *Biznes Inform - Business- Inform*, № 7, pp. 85-88.

8. Zakon Ukrainy Pro natsionalnu bezpeku Ukrainy vid 21.06.2018 r. № 2469-VIII. Retrieved from <https://zakon.rada.gov.ua/laws/show/2469-19#n355>.

9. Postanova Verkhovnoi Rady Ukrainy Pro pryiniattia za osnovu proektu Zakonu Ukrainy pro prodovolchu bezpeku Ukrainy vid 14.06.2011 r. № 3498-VI. Retrieved from http://w1.c1.rada.gov.ua/pls/zweb_n/webproc4_2?pf3516=8370-1&skl=7.

10. Ukaz Prezidenta Ukrainy Pro rishennia Rady natsionalnoi bezpeky i oborony Ukrainy vid 09.12.2005 r. «Pro stan ahropromyslovoho kompleksu ta zakhody shchodo zabezpechennia prodovolchoi bezpeky Ukrainy» vid 28.12.2005 r. № 1867/2005. Retrieved from <https://zakon.rada.gov.ua/laws/show/1867/2005/print>.

11. Zakon Ukrainy Pro osnovni zasady derzhavnoi ahraryoi polityky na period do 2015 roku vid 18.10.2005 r. № 2982-IV. Retrieved from <https://zakon.rada.gov.ua/laws/show/2982-15>.

12. Rozporiadzhennia Kabinetu Ministriv Ukrainy Pro zatverdzhennia planu zakhodiv z vykonannia Prohramy diialnosti Kabinetu Ministriv Ukrainy ta Stratehii staloho rozvytku «Ukraina-2020» u 2015 rotsi vid 04.03.2015 r. № 213-r. Retrieved from <http://zakon3.rada.gov.ua/laws/show/213-2015-r/ed20150304>.

13. Uriadovyi portal. Yedynyi veb-portal orhaniv vykonavchoi vlady Ukrainy. Retrieved from <http://www.kmu.gov.ua/control>.

14. Agrarnyy sektor Ukrainy: investitsionnaya privlekatel'nost', nesmotrya na nesovershennoye regulirovaniye. IFC (Mezhdunarodnaya finansovaya korporatsiya): *APK-inform*. 2017. Retrieved from <http://www.apk-inform.com>.

15. Vnedreniye novykh tekhnologiy: vyzovy dlya ukrainskikh kompaniy: materialy kruglogo stola. Agrokholding «KHarmeliya». 2017, 29 iyulya. Retrieved from <http://http://www.harmelia.com/2017/07/29>.

16. Agrovypusk agrokholdinga «KHarmeliya». Agrokholding «KHarmeliya». 2017, 4 okt. Retrieved from <http://www.harmelia.com>.

17. Babenko V.A. (2017): Modelling of factors affecting innovational agricultural activity of enterprises AIC in Ukraine. *Scientific bulletin of Polissia*, № 1 (9): P. 2, pp. 115-121.