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PROSPECTS FOR THE DEVELOPMENT OF THE AGRICULTURAL SECTOR OF UKRAINE IN THE CONDITIONS OF POST-WAR RECOVERY

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THE PURPOSE OF THIS ARTICLE is to determine promising directions for the development of the agro-industrial sector of Ukraine in the conditions of post-war recovery.

RESEARCH METHODS. In the process of writing the article, general scientific and special research methods of the agroindustrial sector were used, including: induction and deduction; structural and logical analysis; extrapolations; tabular and graphic.

PRESENTATION OF THE MAIN **RESEARCH MATERIAL.** The article determines that the agro-industrial sector is one of the key sectors of the country's which made a significant economy. contribution to the country's GDP before the war. Since the beginning of the war, the agro-industrial sector has suffered significant losses and needs to be restored and further developed. Prospective ways of development of the agro-industrial sector have been determined, which can be carried out in three key areas: activation of own reserves of agricultural enterprises; receiving donor international aid; development of the state agrarian policy of post-war recovery. It has been proven that the restoration of broken agrofood chains and the inclusion of domestic agricultural enterprises in global agrofood chains is a promising direction for the development of the country's agroindustrial sector. It was found that the agro-food chain is a set of interdependent enterprises that have united on a voluntary basis and closely cooperate in the process of agricultural production. It has been proven that the restoration of the agrofood chain will take place in the event that it includes enterprises for cultivation processing, (fattening), transportation, storage and sale of agricultural products.

CONCLUSIONS FROM THE **CONDUCTED** RESEARCH. The restoration of broken agro-food chains and the inclusion of domestic agricultural enterprises in global agro-food chains will contribute to their accelerated recovery, reducing the level of costs for production, transportation, storage, processing and sale of agricultural products; accelerating the recovery of agricultural enterprises due to the joint interaction of participants in agro-food chains; increasing the level of quality of agricultural products.

KEYWORDS: agro-industrial sector; agriculture; agro-food chains; global agro-food chains; post-war recovery.

NUMBER	NUMBER	NUMBER
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ПЕРСПЕКТИВИ РОЗВИТКУ АГРОПРОМИСЛОВОГО СЕКТОРУ УКРАЇНИ В УМОВАХ ПІСЛЯВОЄННОГО ВІДНОВЛЕННЯ

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МЕТОЮ ДАНОЇ СТАТТІ ϵ визначення перспективних напрямів розвитку агропромислового сектору України в умовах післявоєнного відновлення.

МЕТОДИ ДОСЛІДЖЕННЯ. В процесі написання статті використано загальнонаукові та спеціальні методи дослідження агропромислового сектору, серед яких: індукції та дедукції; структурно-логічного аналізу; екстраполяції; таблично-графічний.

ВИКЛАД ОСНОВНОГО матеріалу дослідження. статті визначено, що агропромисловий сектор є одним з ключових секторів економіки країни, який до створював значний внесок у ВВП країни. З початком війни агропромисловий сектор зазнав значних збитків і потребує відновлення та подальшого розвитку. Визначено перспективні розвитку агропромислового сектору, які можуть здійснюватися в трьох ключових напрямах: активізація власних резервів сільськогосподарських підприємств; отримання донорської міжнародної допомоги; розробка державної аграрної політики післявоєнного відновлення. Доведено, що відновлення розірваних агропродовольчих ланцюгів та включення вітчизняних сільськогосподарських підприємств до глобальних агропродовольчих ланцюгів є перспективним напрямом розвитку агропромислового сектору

країни. З'ясовано, що агропродовольчий ланцюг — це сукупність взаємозалежних підприємств, які об'єдналися на добровільних засадах і тісно співпрацюють в процесі виробництва сільськогосподарської продукції. Доведено, що відновлення агропродовольчого ланцюга відбудеться у разі, коли до його складу увійдуть підприємства з вирощування (відгодівлі), переробки, транспортування, зберігання та продажу сільськогосподарської продукції.

ВИСНОВКИ 3 ПРОВЕДЕНОГО ДОСЛІДЖЕННЯ. Відновлення розірваних агропродовольчих ланцюгів та включення вітчизняних сільськогосподарських підприємств до глобальних агропродовольчих ланцюгів сприятиме їх прискореному відновленню, зменшенню рівня витрат на виробництво, транспортування, зберігання, переробку та продаж сільськогосподарської продукції; прискоренню відновлення сільськогосподарських підприємств за рахунок спільної взаємодії учасників агропродовольчих ланцюгів; підвищенню рівня якості сільськогосподарської продукції.

КЛЮЧОВІ СЛОВА: агропромисловий сектор; сільське господарство; агропродовольчі ланцюги; глобальні агропродовольчі ланцюги; післявоєнне відновлення.

Statement of the problem. The agro-industrial sector is one of the key sectors that provide a significant contribution to the development of the country's economy. Before the war, the agro-industrial sector of Ukraine "was characterized by positive development dynamics, high export potential on the world market, which contributed to the solution of food security at the national and global levels" (Vdovenko, 2022) and produced 10% of the country's GDP, provided 41% of the total export of agricultural products and provided jobs for 14% of the working population (DLF, 2023). The growth of the industry was 5–6% per year (Economics.org.ua, 2023). As a result of the war, the agro-industrial sector suffered colossal losses in the amount of more than 8.7 billion US dollars. Domestic agricultural enterprises have encountered significant problems and obstacles in their functioning, which require urgent solutions to restore their activities and ensure further development.

Analysis of recent publications on the problem. The study of the state and prospects for the development of the agro-industrial sector of the country is devoted works of such scientists as: M. Bilykh, V. Bondarenko, L. Vdovenko, Y. Hontaruk, A. Dunska, Yu. Kashirna, B. Kosovich, A. Kyretiv, I. Kostenko, M. Negerey, S. Pasko, P. Povroznyk, A. Taranenko, V. Tkach.

The problems of the formation and development of agro-food chains at the national and global levels are devoted to the work of such domestic scientists as: P. Antonyuk, O. Borodina, O. Varchenko, O. Gudenko, O. Krupelnytska, T. Lozova, N. Maievska, S. Petrukha, N. Petrukha, G. Ryzhakova and foreign scientists, including: P. Beske, J. Christien, O. Huirne, A. Land, J. Ondersteijn, S. Seuring, R. Wijnands. However, their works reveal the problems and prospects of the development of the agro-industrial sector in the pre-war period. The problem of recovery and development of the agro-industrial sector in the conditions of post-war recovery is new and requires in-depth research with the development of new methods and tools that can be applied to intensify the post-war recovery of the agro-industrial sector.

Statement of the main results and rationale. Since the beginning of the war, the agro-industrial sector suffered total losses in the amount of 8.7 billion US dollars, which is 5.8% of the total losses of the country's economy (Focus, 2023). According to the State Statistics Service, in 2022 compared to 2021, the collection of grain fell by 37.4%, vegetables – by 25%, fruits – by 10% (Visituukraine.today, 2023). During this period, there was a 20% reduction in the sown area (DLF, 2023), as a result of which more than 32 million tons of grain harvest was not obtained in 2022. The hostilities and occupation of part of the country's territory resulted in the loss of up to 80% of the harvest in the Donetsk, Luhansk and Zaporizhia regions; in the Kharkiv, Odesa, Mykolaiv and Vinnytsia regions, up to 50% of the harvest was lost. Enterprises of the agroindustrial sector suffered damage to production buildings, structures and

granaries in the amount of 1.33 billion US dollars; equipment and machinery for the production of agricultural products in the amount of 4.65 billion US dollars (Focus, 2023). At the same time, mine contamination of 400,000 hectares of agricultural land located in the combat zone affected the decrease in the amount of cultivated land (DLF, 2023).

Established agri-food chains were broken, which made it difficult to deliver agricultural products to domestic and foreign consumers. If before the war 90% of agricultural exports passed through the Black Sea ports of Ukraine, in 2022, when the ports were blocked, grain exports fell from 5.4 million tons at the beginning of the year to 0.3 million tons in March (DLF, 2023). Due to the specificity of their activities, most of the enterprises of the agro-industrial sector cannot relocate their business to safe regions of the country and are forced to suspend their activities, as a result of which the so-called "abandoned lands" were formed, the owners of which temporarily moved abroad for their safety. In addition, the development of the activities of enterprises in the agro-industrial sector of the country is hindered by such problems as: "opacity of land relations; non-compliance with international quality and safety standards; low level of investment; unadapted legislative acts of Ukraine to EU requirements; the problem of market redistribution in market independence; increased dependence on state funding; low level of innovative activity; imperfect logistics" (Nehrey et al., 2022), as well as difficulty in accessing the necessary resources (vaccines, fodder, equipment); restrictions on the use of fertilizers, pesticides, seeds supplied from abroad; loss of buyers of agricultural products who, because of the war, are unable to purchase products in pre-war volumes; difficulties in finding new customers; impossibility of expansion of sales markets.

In order to overcome the above-mentioned problems of the development of the agro-industrial sector, a number of promising measures for its restoration should be implemented, both at the micro- and macro-levels. To restore the agro-industrial sector A.R. Dunska and M.S. Bilykh propose to use "two main non-equivalent sources. First of all, it is a source with limited possibilities – the use of own reserves, including the investments involved, by agricultural companies. Secondly, donor international aid, which will be provided by the programs of the European Union, aimed at the assistance and adaptation of candidate states to become EU members" (Dunska and Bilykh, 2022). However, the mentioned two directions will not be effective enough without the formation of the appropriate state agrarian policy for the post-war recovery of the agro-industrial sector.

The strategic goals of the restoration of the agro-industrial sector for 2022–2024, developed by the Ministry of Agrarian Policy and Food of Ukraine, are recognized:

food safety;

- provision of stimulating and advisory agrarian policy;
- providing market players with quality infrastructure
- creation of conditions for manufacturers regarding the possibility of providing available material and technical resources;
- ensuring the production and export of safe and healthy agricultural and food products;
- balancing the production of high- and low-margin products to increase the profitability of the sector;
- stimulating the production of products with high added value to meet domestic needs and increase exports;
- creation of new production capacities through stimulation of innovative activities of enterprises in all regions of the country using the competitive advantages of each of them;
 - ensuring sustainable use of aquatic biological resources;
- effective transparent management and regulation in the field of land relations;
- financial stability of agricultural producers (Ministry of Agrarian Policy and Food of Ukraine, 2022).

To restore the agro-industrial sector, as N.S. Vdovenko notes, the following measures will be effective:

- creation of an alternative logistics network for the export of agricultural products through the seaports of other countries (Romania, Bulgaria) and modernization of the railway connection and its wide use;
- minimization of bureaucratic procedures for enterprises of the agricultural sector (requests from manufacturers to obtain the necessary licenses and certificates);
 - regulation of price policy regarding means of agro-industrial production;
- free access to factors of production and sales of all subjects of agrarian business;
- expansion of bank lending programs for small and medium-sized businesses under conditions acceptable to farmers;
- use of foreign investors' funds for the development and restoration of the agricultural sector (Vdovenko, 2022).
 - M. Nehrey, A. Taranenko and I. Kostenko include such measures:
- reduction of bureaucratic barriers for the development of agricultural enterprises;
- development and implementation of a set of measures to create new jobs and develop the social infrastructure of rural areas;
- adaptation of the production of the agricultural sector of Ukraine to the requirements of the European Union;

- support of small farming, assistance to retailers for internal procurement of fruits and vegetables;
 - technological development and digitalization of the agricultural sector;
- development of processing in the agricultural sector in accordance with the principles of the Green Deal;
- creation of conditions for the transition of the agricultural sector to sustainable production;
- involvement of highly qualified personnel in the agricultural sector (managers, IT specialists, scientists and narrow-profile agricultural specialists);
- improving the quality of product safety in accordance with the requirements of international standards, including the development of measures to improve the quality of citizens' products (Nehrey et al., 2022).

"Strengthening of state regulation regarding the financial condition of enterprises, which should be aimed at creating cost-effective agro-industrial production, deepening the degree of processing and improving the storage of agricultural products", as noted by V. Tkach and Yu. Kashirna, is an active direction for the recovery of the agro-industrial sector (Tkach and Kashirna, 2013).

The search and implementation of "innovations that will be effective in the conditions of war and post-war recovery of the country", according to B.I. Kosovich, P.P. Povroznyk and A.Ya. Kiretiva, is the key direction of accelerating the recovery of the agro-industrial sector. The authors believe that it is "innovative approaches and technologies, new quality of work, innovative developments and inclusive solutions that will reduce costs, increase productivity and profitability of agricultural production, which will strengthen not only food security of Ukraine, but also economic security" (Kosovych et al., 2022). The innovative technologies that should be implemented for the restoration and development of the agro-industrial sector of the country, as noted by S.M. Pasko, include the following: "safe genetic engineering of seed material; zero flow hydrosystem fishing; tray-condensate irrigation systems; computer management of livestock; bioinsecticides and pollinators; cocoonsleeve granaries; precision seeding technologies; "smart" greenhouses; Craft Scanner sensors for monitoring the depth of tillage; aeroponic farms (growing plants without soil) and other technologies" (Pasko, 2022). However, the introduction of innovations requires attracting additional investments in the renewal of production, without which further development of the agro-industrial sector is impossible (Bondarenko and Gontaruk, 2021).

The introduction of modern agricultural technologies (Ag Tech technologies) will also contribute to faster recovery and development of the agro-industrial sector. "Transition to more environmentally friendly green technologies and focus on sustainable agriculture", as noted by S. Reznichenko,

head of agronomy and technology development of the company "Corteva Agriscience", will contribute to increasing soil fertility, reducing emissions into the atmosphere, reducing the amount of fertilizers, introducing innovative means of plant protection, which in turn will ensure a faster recovery of agricultural production, lower costs and increase the competitiveness of the agro-industrial sector (Skrypnyk, 2023).

At the same time, the implementation of the above-mentioned measures of post-war reconstruction and development of the agro-industrial sector will not be effective enough without the restoration of broken agro-food chains. A generalization of the views of domestic and foreign scientists regarding the essence of the concept of "agro-food chain" is given in Table 1.

Table 1

The essence of the concept of "agri-food chain"

Author	Definition of the term "agri-food chain"
O. Borodina	mutually beneficial relationships between groups of producers, sellers,
	processors and service companies that join together to increase productivity
	and create added value based on an understanding of mutual benefit and fair
	distribution of the achieved result (Borodina, 2014)
O. Varchenko	the process through which the final product (food) is created for sale to
	consumers, that is, the purposeful movement of a product from its
	constituent parts to the manufacture of a finished product (Varchenko, 2019)
N. Majevska	an integrated approach to the creation of added value based on the
	realization of the economic interests of each of its participants (Majevska,
	2022)
FAO	a set of agricultural producers and organizations that consistently and
	coordinatedly ensure the creation of added value from the production of
	specific types of agricultural products and their processing in order to obtain
	food products that are sold to the final consumer and after consumption are
	sent to waste, ensuring profitability at each stage, creating broad benefits for
	society without permanent depletion of natural resources (FAO, 2014)
P. Beske,	a set of interdependent companies that work closely together to exert a
A. Land,	targeted influence on the flow of goods and services along the entire value
S. Seuring	chain of agricultural and food products, which will ensure that this flow is
	brought to consumers at the lowest possible cost (Beske et al., 2014)
J.M. Christien	activities that cover the stages from production to distribution, which
et al.	ensures the delivery of products to final consumers (Christien et al., 2006)

Source: summarized by the author.

Taking into account the above-mentioned approaches, the agro-food chain, according to the author's definition, should be understood as a set of interdependent enterprises that have united on a voluntary basis and closely cooperate in the production of agricultural products. The agro-food chain will be formed when it will include enterprises for cultivation (fattening), processing, transportation, storage and sale of agricultural products, that is, those that will fully ensure the full cycle of agricultural production. As Antonyuk P. O. and Lozova T. P. note, the restoration of domestic agro-food chains should take place in the direction of "the formation in the region of completed agro-food chains of final products with high added value, which, in turn, involves stimulating the processing of raw materials and the production of domestic food products for satisfaction of dynamic consumer demand, activation of the activities of subjects of processing sectors of commodity markets, creation of additional jobs, effective use of the potential of regional economic systems" (Antonyuk, Lozova, 2022). To evaluate the effectiveness of the creation and restoration of agro-food chains, the AVACS method should be used, proposed in the research of Ryzhakova G. The AVACS method is "a fast food market evaluation method between in-depth value chain analysis (VCA) and sub-sector analysis (SSA); action research (AR); monitoring of local business support centers (BSC). The AVACS method makes it possible to identify the positions of agricultural producers on the food market and in the chain of added value of agro-food products" (Ryzhakova et al., 2022).

The restoration of broken domestic agro-food chains and the inclusion of domestic producers of agricultural products in global agro-food chains, which are a key element of world trade, will contribute to the faster recovery of the country's agro-industrial sector. Thus, to date, the restoration of agro-food chains by finding alternative routes for the delivery of agricultural products has made it possible to increase the export of grain from 1.2 million tons in April to 2.7 million tons in June 2023. The introduction of the Black Sea Grain Initiative made it possible to increase grain exports to 6-7 million tons per month starting in July (DLF, 2023). More than 30% of agricultural products are exported abroad through global agri-food chains.

Conclusions and prospects for further research. Since the beginning of the war, the domestic agro-industrial sector suffered great losses due to the reduction of harvest volumes, the reduction of cultivated areas, the emergence of "abandoned lands", the destruction of production complexes and equipment. To restore the agro-industrial sector, domestic scientists have developed a number of different measures in three key directions: activation of own reserves of agricultural enterprises; receiving donor international aid; development of the state agrarian policy for the post-war recovery of the agro-industrial sector. The most effective direction is the restoration of broken agro-food chains and the inclusion of domestic agricultural enterprises in global agro-food chains. This will contribute to reducing the level of costs associated with the production, transportation, storage, processing and sale of agricultural products; accelerating the recovery of agricultural enterprises due to the joint interaction of participants in agro-food chains; increasing the level of quality of agricultural products.

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