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State support for business structures in the agricultural sector of Ukraine's economy

Abstract. The relevance of the study is primarily conditioned by the greater uncertainty of business in agriculture compared to other sectors and its leading place in the economic development of Ukraine, the need to strengthen food security, rural development, and environmental protection. The purpose of the study was a comparative assessment of the levels and trends of state support for agricultural entities of Ukraine and EU member states in general, determining the economic

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consequences of implementing the “Farm to Fork” and “Biodiversity” strategies in agricultural production of Ukraine and improving the decision-making tool for state support for business structures of the agricultural sector of Ukraine in 2026-2030. In the course of the research, methods of analysis and synthesis, mathematical modelling, normative, and computational and constructive methods were used. As a result of the study, the tools and areas of state support for business structures of the agricultural sector of Ukraine under martial law were analysed, and a comparative assessment of state support for agriculture of Ukraine and EU member states in 2019-2023 was presented. It was established that the implementation of the “Farm to Fork” and “Biodiversity” strategies can reduce in the short term in agricultural enterprises the volume of grain production by 9.2%, oilseeds by 21.0%, and the amount of profit by USD 1.02 billion or approximately USD 57.6 per 1 ha of agricultural land. A mathematical model was proposed for evaluating decision-making on the choice of priority areas of state support for agricultural production. The practical significance of the results obtained in the course of the study lies in the possibility of their use by central and regional executive authorities conducting agricultural policy when making decisions on the development of agriculture in Ukraine

Keywords: entrepreneurship; sustainable development; agricultural policy; agri-food trade; financing; European integration

INTRODUCTION

As a result of the military actions of the Russian Federation against Ukraine, agricultural producers suffered significant losses due to the destruction and damage of agricultural machinery, granaries, livestock premises, perennial plantings, theft of factors of production and manufactured products. A significant part of Ukraine's arable land was occupied, mined, or chemically contaminated. The number of business entities, and the number of employees employed in the agricultural sector, has significantly decreased. Instability in agricultural markets, export restrictions imposed by some countries, slowing global agricultural productivity growth, and climate change make it necessary to reform or reorient support for agriculture. Therefore, Ukraine, as a candidate for EU membership, should use the long-term experience of the Common Agricultural Policy (CAP) to reform the system of state support for business entities in the agricultural sector.

Various aspects of the Common Agricultural Policy (CAP) have been studied by many foreign and Ukrainian researchers. E. O'Rourke & J.A. Finn (2020) proved that payments to farmers, unlike the action-oriented approaches under CAP 2014-2022, should be result-oriented and related to achieving specific environmental results. M. Díaz *et al.* (2021) pointed to increased coherence in the use of CAP tools and noted

that in order to improve the adoption of mandatory requirements and maximise the implementation of effective voluntary measures to preserve diversity, EU member states should provide farmers with knowledge dissemination and training services, improve support for local initiative groups through the European Innovation Partnership in agriculture (EIP-AGRI) and the LEADER Programme. The European Commission (2020b), based on the materials of more than 300 experts, identified the directions of CAP reform for 2023-2027 to improve its effectiveness in preserving biodiversity and landscapes, and to achieve the goal of a green agreement to stop and return to the previous state of biodiversity loss of agricultural land.

Kh.A. Hryhorieva (2024) investigated the problems of legal support of state support for agriculture in Ukraine and in the European Union. J. Barreiro-Hurle *et al.* (2021) presented the results of a study of the impact of selected “Farm to Fork” and “Biodiversity” strategies within the 2030 climate targets and CAP post-2020 on EU agriculture using the CAPRI model. Along with that, G. Pe'er *et al.* (2025) noted the important role of science in the public debate on environmental policy, as CAP is not immune to misconceptions and misinformation. P. Jeanneret *et al.* (2021) also noted that scientists can support policy development after evaluating its results

and identify innovative business models that align food production and consumption, conservation, and economic and social goals.

The issue of state support for the development of agriculture in Ukraine was widely covered in the works of Ukrainian researchers and scientists. T.O. Zinchuk & N.M. Kutsmsus (2023) examined the tools and forms of state support in the EU CAP and substantiated the need to consider its achievements in Ukrainian agricultural policy. D. Shelenko *et al.* (2023) proved that the state support mechanism should provide the necessary volumes of agricultural production, their structure and changes in the business strategy. Yu. Lupenko *et al.* (2023) and M. Malik *et al.* (2023) in their papers established that the mechanism of state support should provide business entities with access to production material resources and financial resources for the restoration and diversification of business activities in the post-war period.

All the above-mentioned studies proved the need to improve the system of state support for business entities in the agricultural sector of Ukraine, which should have a stimulating character. However, there are no studies that would address this issue in a comprehensive manner. They should be based on investigating the experience of regulating the activities of business entities in the agricultural sector of Ukraine, analysing the best practices of Ukrainian science, the Common Agricultural Policy of the EU and the system of state support for agriculture in other countries of the world. The purpose of this study was to investigate the economic consequences of implementing the strategies "Farm to Fork" and "Biodiversity" in the agricultural production of Ukraine and the need to improve the decision-making mechanism for state support of business structures of the agricultural sector of Ukraine in the post-war period, which would encourage agricultural producers to organise effective and sustainable agricultural systems, preserve and restore biodiversity, ensure food security and healthy nutrition.

MATERIALS AND METHODS

The study analysed data for the period from 2019 to 2023, as data for 2024 was not yet available at the time of writing. The research methodology

was based on a systematic approach, which consisted in considering agriculture as a complex ecological, social, and economic subsystem that is a component of the national economy. This allowed considering agriculture as a system that effectively carries out its activities only with the coordinated functioning of its elements and parts, and identifying the impact of individual instruments of state support for business structures of the agricultural sector on its development. When determining the levels and areas of state support for agriculture in Ukraine and the EU countries, the methodological approach used by the Organisation for Economic Cooperation and Development (OECD, 2021) was used. On its basis, a comparative assessment of the levels and trends of state support for agricultural entities of Ukraine and EU member states as a whole was carried out.

To assess the impact of the decision to implement the strategies of the European Green Deal "Farm to Fork" and "Biodiversity" in agricultural production in Ukraine, the basic linear programming model was used to optimise the production structure of the enterprise (Zaburanna *et al.*, 2014). It allowed determining the optimal production structure of agricultural enterprises at the national level based on the criterion of "maximum profit". The inclusion in the basic model of restrictions for agriculture, which are provided for by the strategies "Farm to Fork" (European commission, 2020a) and "Biodiversity" (European commission, 2020b) and the addition of the model with the conditions for providing state support to agricultural enterprises, helped to determine the volume and areas of this support.

The basic model for optimising the production structure of the enterprise was supplemented with restrictions that reflected the conditions for providing state support to agricultural enterprises:

1. Restrictions on the use of funds for the current activities of agricultural producers.

$$X_{gv} - X_{kk} - U_{kp} - U_{kv} \leq P_p, \quad (1)$$

where: X_{gv} – the required total amount of funds for the current activities of agricultural producers; X_{kk} – the required amount of short-term

loan needed by agricultural producers for their current activities; Ukp – the required amount of state support funds, which will be used for partial compensation of working capital formation costs; Ukv – the required amount of state support funds that will be used to partially compensate for interest on short-term loans. Values Ukp , Ukv can be controlled variables, i.e., they can be used as parameters, if they change, the results of solving the problem will also change, which allows determining their quantitative impact on the development of agricultural production. Pp – the amount of own funds of agricultural producers that they can use to carry out current activities.

2. Restrictions on the amount of obtaining a short-term loan.

$$Xkk \leq Kk, \quad (2)$$

where: Kk – the maximum possible amount of obtaining a short-term loan by commodity producers.

3. Condition for the ratio of the amount of short-term loan received by commodity producers and the amount of state support funds that will be used for partial compensation of interest on loans.

$$Uk \leq \delta Xkk, \quad (3)$$

where: δ – the share of state support funds that will be used to partially compensate for interest on loans.

4. Restrictions on the amount of state support funds that will be directed to the current activities of agricultural producers.

$$Ukp + Ukv \leq Kkp, \quad (4)$$

where: Kkp – the maximum possible amount of state support funds, which will be directed to the current activities of rural producers

5. Restrictions on the use of funds for investment activities of agricultural producers.

$$Xok - Xdk - Ukd - Udv \leq Pi, \quad (5)$$

where: Xok – the required total amount of funds for investment activities of agricultural producers; Xdk – the required amount of long-term loan necessary for agricultural producers to carry out investment activities; Ukd – the

desired amount of state support funds, which will be used for partial reimbursement of expenses for the formation of fixed capital to agricultural producers; Udv – the required amount of state support funds, which will be used to partially compensate for interest on long-term loans.

Values Ukd , Udv when implementing models can be used as parameters for determining the quantitative impact on the development of agricultural production. Pi – the amount of own funds of agricultural producers that they can use to carry out investment activities.

6. Limit on the amount of obtaining a long-term loan.

$$Xdk \leq Kd, \quad (6)$$

where: Kd – the maximum possible amount of obtaining a long-term loan by commodity producers.

7. Condition for the ratio of the amount of long-term loan received by commodity producers and the amount of state support funds that will be used for partial compensation of interest on long-term loans.

$$Udp \leq \varepsilon Xdk, \quad (7)$$

where: ε – the share of state support funds that will be used to partially compensate for interest on long-term loans.

8. Restrictions on the amount of state support funds that will be directed to investment activities of agricultural producers.

$$Ukd + Udv \leq Kk, \quad (8)$$

where: Kk – the maximum possible amount of state support funds, which will be directed to the investment activities of rural producers;

The main sources of information for the study were materials from the State Statistics Service of Ukraine (2024), the OECD database (2021; 2022; 2023; 2024), European Commission (2024), materials of Ministry of Agrarian Policy and Food of Ukraine (2021; 2022; 2025a; 2025b), Agribusiness of Ukraine handbook 2023/24 (2024), law of Ukraine No. 2629-VIII (2018), Law of Ukraine No. 2710-IX (2022), Law of Ukraine No. 3460-IX (2023) the order of the Cabinet of Ministers of Ukraine No. 495-r (2024). The model included activities of agricultural enterprises that provided about 90% of

their gross agricultural output in 2023: growing wheat, rye, barley, corn, millet, buckwheat, oats, legumes, sunflower, soy, rapeseed, flax, sugar beet, potatoes, vegetables, fodder crops (fodder root crops, corn for silage and green fodder, annual grasses for hay, haylage and green fodder, perennial grasses for hay, haylage, green fodder and seeds), vineyards, fruit and vegetable plantations, care of hayfields and pastures, breeding dairy cows, young cattle, pigs, sheep, and poultry. The model included 63 variables and 78 constraints. The study on the impact of the decision on the implementation of the strategies of the European Green Deal “Farm to Fork” and “Biodiversity” in agricultural production in Ukraine was conducted according to two scenarios (European Commission, 2019). The first scenario provided for calculating the profitability of agricultural enterprises under the existing production structure in 2023 with state support in the amount of UAH 4.0 billion (pre-war value) and in the absence of restrictions on the “Farm to Fork” and “Biodiversity” strategies. At this stage of calculations, the adequacy of the developed model was also checked by comparing the actual indicators for 2023 with the calculated indicators. The calculations were performed using the Excel add-in “Solver”. At this stage, the model removed the restrictions on variables for activities and included restrictions for agriculture, which are provided for in the “Farm to Fork” and

“Biodiversity” strategies. Under the second scenario, the production structure of agricultural enterprises was optimised according to the “maximum profit” criterion, provided that state support of UAH 4.0 billion was provided.

RESULTS AND DISCUSSION

State support for business entities in the agricultural sector of Ukraine is provided through direct budget support, preferential taxation, and state regulation of product prices. Every year, the state budget of Ukraine allocates a certain amount of expenditures (direct budget support) to finance a certain budget programme to support agricultural producers. Until 2020, the state budget of Ukraine allocated several programmes to support agricultural producers (Law of Ukraine No. 2629-VIII, 2018). In 2020–2023, these programmes were combined (except for the programme “Provision of loans to farms (UDF)” in one budget programme “Financial support for agricultural producers” (Law of Ukraine No. 2710-IX, 2022). After 2022, under martial law in Ukraine, with limited funds, the system of support for agricultural producers was somewhat disrupted and funds from the state budget were allocated mainly only for urgent needs. Therefore, the analysis of the amount of funds paid for the implementation of state programmes to support agricultural producers is presented for 2019–2021 (Table 1).

Table 1. Volumes of funds paid for the implementation of state programmes to support agricultural producers of Ukraine in 2019–2021

Year	State programme of support for agricultural producers	Amount of funds received, thous. UAH	Number of recipients*
2019	State support for animal husbandry	2,433,576.12	1,179
	State support for the development of hop growing, establishment and supervision of young orchards, vineyards, and berry fields	397,878.90	210
	Provision of loans to farms (USF)	225,083.00	595
	Financial support for activities in the agro-industrial complex by reducing the cost of loans	449,872.34	966
	Financial support for farm development	420,446.65	5,944
	Financial support for agricultural producers	640,793.81	4,315
	Total	4,567,650.82	9,927
2020	Provision of loans to farms (USF)	65,566.90	176
	Financial support for agricultural producers	3,965,818.47	11,538
	Total	4,031,385.37	11,614

Table 1, Continued

Year	State programme of support for agricultural producers	Amount of funds received, thous. UAH	Number of recipients*
2021	Provision of loans to farms (USF)	50,000.00	127
	Financial support for agricultural producers	4,662,394.88	11,198
	Total	4,712,394.88	11,257

Note: the number of recipients is not the sum of the programmes, because some subjects participated in several programmes simultaneously

Source: Ministry of Agrarian Policy and Food of Ukraine (2021)

The data in Table 1 show that in 2019-2021, agricultural businesses received slightly more than UAH 4 billion in state support annually. It was received mainly by large agricultural enterprises, the share of which in the total number of business entities did not exceed 18%. In the structure of funds paid from the state budget in 2019-2021,

from 95 to 99% of the total amount of support was allocated for the programme “Financial support for agricultural producers”. In 2021, the budget programme “Financial support for agricultural producers” was implemented under the following main subprogrammes: (Ministry of Agrarian Policy and Food of Ukraine, 2021) (Table 2).

Table 2. Components of the budget programme
“Financial support for agricultural producers” of Ukraine in 2021

State subprogramme of financial support for agricultural producers	Amount of funds received, thous. UAH	Number of recipients
Compensation of losses from damage to agricultural crops as a result of anthropogenic and natural emergencies	107,910.49	527
State support for potato production	53,214.59	2
State support for the development of animal husbandry and processing of agricultural products	1,609,572.93	707
State support for agricultural producers by allocating budget subsidies per unit of cultivated land	50,000.00	653
State support for agricultural producers using reclaimed land	16,745.87	7
Provision of additional financial support to family farms through the mechanism of additional payment in favour of insured persons –S members/chairman of the family farm of a single contribution to mandatory state social insurance	603.60	1
State support for measures in the agro-industrial complex by reducing the cost of loans	1,200,000.00	4,434
Financial support for the development of horticulture, viticulture and hop growing	512,228.00	292
Total	4,712,394.88	11,257

Note: the number of recipients is not the sum of the programmes, since some subjects participated in several programmes simultaneously

Source: Ministry of Agrarian Policy and Food of Ukraine (2021)

The data in Table 2 show that by 2022, Ukraine had already established a stable system of financial support for agricultural producers, consisting of separate subprogrammes, which in turn were divided into separate areas of support. In 2021, for the implementation of the subprogramme “State support for the development of animal husbandry and processing of agricultural products” was allocated the most funds – 34.1% of the total amount of

support. The implementation of this subprogramme allowed partially reimbursing agricultural producers for the cost of building or reconstructing livestock farms, purchased breeding animals, milking parlours, agricultural processing enterprises, etc. With minor changes, this subroutine is also being implemented in 2025 (Resolution of the Cabinet of Ministers of Ukraine No. 950-2025-p, 2025). The implementation of the subprogramme

“State support for activities in the agro-industrial complex by reducing the cost of loans” provided an opportunity for business entities to receive compensation for using loans to replenish working capital and purchase fixed assets of production (Resolution of the Cabinet of Ministers of Ukraine No. 300, 2015).

To register agricultural producers who want to receive state support and transparently distribute all types of support among them, the State Agrarian Register (2025) was created in Ukraine in 2021. As of September 18, 2024, 176 thousand agricultural producers were already registered in the State Agrarian Register and more than 50 support programmes were implemented through it (Liga Zakon, 2025). After 2022 the situation with direct state support programmes remained very difficult. In 2022, 1.5 times less funds were allocated for the implementation of state programmes to support agricultural producers in Ukraine compared to 2021 (NISS, 2023). Since 2023, state support for businesses in the agricultural sector has been provided by three ministries: the Ministry of Agrarian Policy, the Ministry of Economy, and the Ministry of Finance of Ukraine. Of the total amount of expenditures of the Ministry of Agrarian Policy in the amount of UAH 7.6 billion (Law of Ukraine No. 3460-IX, 2023), UAH 926.7 million was allocated for financial support of the agro-industrial complex, of which UAH 199.0 million was allocated for the support of business entities that use reclaimed land, UAH 725.6 million was allocated to establish the authorised capital of the fund providing partial loan guarantees for the agricultural sector, while UAH 2.0 million was directed to support family farms by offering additional payments toward the single social insurance contribution for insured members or heads of such farms.

Ministry of Economy of Ukraine, according to Resolution of the Cabinet of Ministers of Ukraine No. 738-2022-p (2022) provides irrevocable state aid to business entities in the agricultural sector in the form of grants for the implementation of projects for the development of horticulture, berry growing, viticulture, and greenhouses. For the development of horticulture, the business entity is granted a grant in the amount of 70% of the project cost, but not more

than UAH 10.0 million per 1 ha of plantings and subject to co-financing of the project cost in the amount of at least 30% by the grant recipient. For the implementation of greenhouse projects, the business entity is granted a grant in the amount of up to 70% of the project cost, but not more than UAH 7 million, and subject to co-financing by the grant recipient of at least 30% of the cost of building a modular greenhouse. Grants are provided subject to the creation of jobs: from 5 to 10 permanent and 125-425 seasonal employees per 1 hectare, depending on the name of garden plantings, and at least 4 permanent and 10 seasonal greenhouses per 1 hectare.

In 2022, grant funds were paid for the development of horticulture, berry growing and viticulture in the amount of UAH 34.29 million, and for greenhouses – UAH 14.02 million. In 2023, grant funds in the amount of UAH 502.86 million were paid for the implementation of projects for the development of horticulture, berry growing, and viticulture, and UAH 153.83 million was paid for greenhouses (Ministry of Agrarian Policy and Food of Ukraine, 2025a; 2025b). Due to the deterioration of the financial condition of farmers and other producers and the lack of financial resources for their production activities under martial law, the government extended the programme “Affordable Loans 5-7-9%” (2021). Under this programme, business entities can receive loans for the purchase of fixed and working capital in the amount of up to UAH 90 million at 5-9% per annum.

In 2024, 12,729 agricultural enterprises in Ukraine received bank development loans worth about UAH 100 billion, including UAH 44.8 billion provided to 8,511 farms under the state programme “Affordable Loans 5-7-9%”. Since December 2024, Ukrainian banks have provided loans to agricultural companies under the “5-7-9%” concessional lending programme only if they comply with environmental and social standards (Agribusiness of Ukraine 2023/24, 2024). Since March 2024, in connection with the changes introduced by Resolution of the Cabinet of Ministers of Ukraine No. 275-2024-p (2024), the Programme for partial compensation of the cost of Ukrainian-made agricultural machinery and equipment has come into effect, providing for partial compensation

in the amount of 25% of the cost of purchased machinery and equipment. The amount of state support per agricultural producer is limited to the amount of no more than 10 thousand minimum wages established on January 1 of the corresponding year.

A separate type of support for business entities in the agricultural sector is the implementation of joint projects with international partners. Within the framework of the grant agreement of the Ukraine Relief, Recovery, Reconstruction and Reform Trust Fund (emergency project for providing inclusive support for the restoration of Agriculture in Ukraine (ARISE) between Ukraine and the International Bank for Reconstruction and Development and the International Development Association (Order of the Cabinet of Ministers of Ukraine No. 495-r, 2024) the programme "Affordable Loans 5-7-9%" was financed in the amount of USD 500.0 million, grant support was provided to farms that have between 1 and 120 hectares in use and/or keep between 3 and 100 cows in the amount of USD 49.2 million, and USD 0.8 million was allocated for coordination and monitoring of the programme (Agribusiness of Ukraine 2023/24, 2024).

The USAID AGRO programme supported micro, small, and medium-sized agricultural enterprises in the face of a full-scale invasion to preserve their economic activity, restore logistics chains and ensure food security of the population (USAID Project, 2025). The USAID AGRO programme raised USD 0.35 billion in 2022; in 2023 – USD 0.5 billion; in 2024 – more than USD 2.26 billion (Agribusiness of Ukraine 2023/24, 2024). Within the framework of the FAO programme, projects were implemented in Ukraine: "Mine clearance and restoration, grain storage assistance" (Canada) in the amount of USD 45.7 million, "Supply chain strengthening" (EU) – USD 25.6 million, "Food security" (France) – USD 8.0 million, "Emergency seed support for food security" (Norway) – USD 6.8 million, "Animal health promotion" (Germany) – USD 5.1 million, "Grain storage assistance" (Multidisciplinary fund) – USD 3.0 million, "Mine clearance and recovery" (World Food Programme) – USD 2.7 million, "Restoration of Sumy region" (Joint UN programme) – USD 2.3 million, "Assistance in the affected regions" (Japan,

Belgium) – USD 1.9 million (Agribusiness of Ukraine 2023/24, 2024).

In December 2024, the State Agrarian Register (SAR) started accepting applications from agricultural producers to receive funds under the grant programme, which was funded by the European Union and FAO and was aimed at increasing the competitiveness of the agricultural sector of Ukraine. Grants will be paid to small business entities in the amount of up to UAH 416 thousand 500 (USD 10 thousand), micro and small enterprises, agricultural co-operatives and associations of producers of products with geographical indications in the amount of up to UAH 1 million 41 thousand 250 (USD 25 thousand) (Agravary, 2025). The status of Ukraine as a candidate country for EU membership has made it necessary to address the issue of bringing Ukrainian legislation in the agricultural sector to European standards. At the end of 2024, since 2014, the level of implementation of the association agreement between Ukraine and the European Union of Ukraine and the harmonisation of the regulatory framework has reached 81%, in particular, in the field of entrepreneurship – 91%, in agriculture – 74% (Government portal, 2024). The further process of Ukraine's integration into the EU requires the introduction and effective application of CAP tools and standards of the EU member states, which ensures the social, economic, and environmental development of agriculture. As in the agricultural policy of Ukraine, in most cases, the priority remains to further increase production volumes without considering environmental and social requirements.

To develop proposals for improving the system of state support for farmers in Ukraine, which would comply with the principles of CAP, it is necessary to conduct a comparative analysis of the levels of support for agriculture in Ukraine and the EU countries. OECD calculates support values by recipient: producer support estimate (PSE), consumer support estimate (CSE), general service support estimate (GSSE), nominal protection coefficient (NPC), total support estimate (TSE) (OECD, 2024). The support provided to agricultural producers in Ukraine, as reflected by the PSE indicator, remains significantly lower than in European Union

countries. From 2019 to 2023, Ukraine's PSE averaged 0.88% of the gross revenue of agricultural enterprises, whereas in the EU it reached

17.34%. On a per-hectare basis, Ukraine received an average of USD 7.12, compared with USD 601.88 in EU member states (Table 3).

Table 3. Comparative analysis of agricultural support levels in Ukraine and EU countries in 2019-2023, USD million

Indicators		Ukraine					EU				
		2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
Total production cost (at farm gate)	total	34,265	34,579	50,143	34,546	32,333	452,697	454,748	483,603	513,859	522,235
	1 ha of agricultural land	827.5	835.1	1213.8	836.2	782.7	2,779.0	2,807.8	2,985.9	3,172.8	3,224.5
Total cost of consumption (at farm gate)		25,594	24,112	30,786	21,590	21,344	435,556	445,464	457,245	517,389	512,229
Producer support estimate (PSE)	total	1,025	490	57	-874	777	104,698	104,538	90,064	88,137	100,571
	1 ha of agricultural land	24.75	11.83	1.38	-21.16	18.81	642.71	645.46	556.09	544.19	620.96
■ Commodity production support		690	178	-271	-1,167	457	20,160	16,900	12,076	15,410	26,678
■ market price support		690	178	-271	-1,167	457	19,864	16,601	11,804	15,158	26,422
■ payments based on output		0	0	0	0	0	296	299	272	252	256
■ Subsidies, partial reimbursement of the cost of fixed assets, etc.		120	135	150	110	222	14,780	15,821	15,704	15,252	15,816
■ Payments for the area of crops and animal husbandry, benefits from preferential taxation, support for small and medium-sized producers, etc.		214	172	178	183	98	27,053	29,115	21,765	21,426	27,167
Percentage of PSE (%)		3.00	1.41	0.11	-2.51	2.38	19.5	19.3	16.03	15.02	16.86
Manufacturer's rated protection coefficient (NPC)		1.01	1.01	0.99	0.97	1.01	1.05	1.04	1.03	1.03	1.05
Nominal manufacturer assistance coefficient (NAC)		1.02	1.01	1.00	0.98	1.02	1.24	1.24	1.19	1.16	1.2
General services support estimate (GSSE)	total	222	224	268	262	241	12,002	12,416	14,375	12,931	14,293
	1 ha of agricultural land	5.36	5.41	6.49	6.34	5.83	73.68	76.66	88.76	79.84	88.25
■ System of agricultural knowledge and innovation		68	71	75	88	78	6,623	6,568	7,803	7,008	7,850
■ Inspection and control		138	141	177	160	153	1,170	1,180	1,246	1,192	1,293
■ Infrastructure development and maintenance		6	2	5	2	2	1,577	1,684	2,216	1,781	2007
■ Marketing and promotion		0	0	0	0	0	2597	2,919	3,066	2,894	3,090
Percentage of GSSE (% of TSE)		17.8	31.32	82.4	...	23.71	10.2	10.6	13.71	12.75	12.4
Consumer support estimate (CSE)		-700	-192	279	1,089	-411	-18,411	-14,668	-11,127	-14,811	-25,493
■ Transfers to producers from consumers		-638	-174	291	1,104	-384	-19,172	-15,036	-10,995	-14,478	-25,407
■ Other transfers from consumers		-56	-17	-8	-16	-6	-265	-128	-578	-632	-904
CSE percentage (%)		-2.8	-0.8	0.91	5.05	-1.93	-2.86	-4.98	-2.44	-2.86	-4.98
Total support estimate (TSE)	total	1,246	714	325	-612	1,018	117,101	117,450	104,886	101,386	115,301
	1 ha of agricultural land	30.09	17.24	7.87	-14.81	24.64	718.85	725.18	647.60	625.99	711.91
Percentage TSE (% of GDP)		0.8	0.46	0.16	0.38	0.62	0.6	0.7	0.61	0.61	0.65
Total budget support estimate (TBSE)	total	556	530	596	554	562	97,237	100,849	93,082	86,228	88,879
	1 ha of agricultural land	13.43	12.80	14.43	13.41	13.60	596.91	622.68	574.72	532.40	548.77
Percentage TBSE (% of GDP)		0.4	0.34	0.3	0.35	0.34	0.6	0.7	0.54	0.52	0.5

Note: EU28 for 2019, EU27 plus UK for 2020, and EU27 for 2021-2023

Source: calculated by the authors based on OECD data (2021; 2022; 2023; 2024)

According to Table 3, in 2019-2023, support for farmers in Ukraine was characterised by instability, which was mainly due to changes in market price support. In 2021-2022, it acquired negative values, because the average producer prices for most goods were inferior to the world ones. Domestic prices for meat products and sugar exceeded global market levels, whereas prices for most grains, industrial crops, and milk were typically below international benchmarks. In 2019-2020 and again in 2023, the value of positive support outweighed the negative price support. Sugar and pork producers received the highest support, while oats, rye, milk and sunflower seeds were implicitly taxed. The single tax regime, to which Ukrainian agricultural producers are entitled, generates implicit tax benefits, which are estimated at approximately USD 102.4 million annually. The volume of budget support for Ukrainian producers during

2019-2023 was insignificant and did not exceed 3% of gross revenues of agricultural enterprises. In the EU countries, this figure exceeded 15%.

General support service expenditure (GSSE) in Ukraine remains low compared to other countries, averaging 0.65% of agricultural production value in 2019-2023, compared to 2.7% in EU countries. During 2019-2023, total support estimate for agriculture in percentage terms (TSE) in Ukraine averaged 0.48% of GDP compared to 0.63% in the EU countries, and per 1 ha of agricultural land, this indicator in monetary terms averaged USD 13.0 in Ukraine, and USD 685.9 in the EU countries (OECD, 2024). To illustrate changes in the application of tools and forms of support to farmers in connection with internal processes in the EU and with environmental requirements, the dynamics of composite costs for EU CAP during 2000-2024 is presented (Fig. 1).

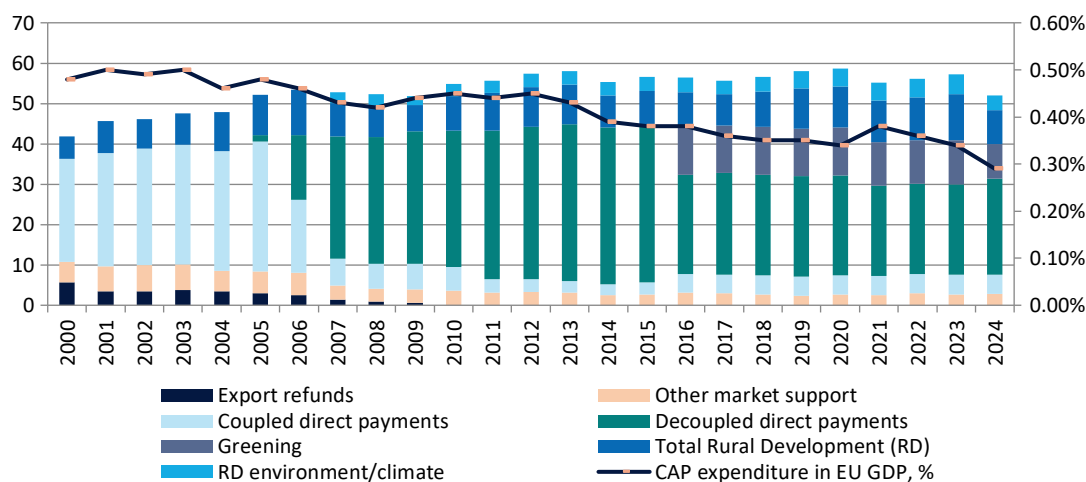


Figure 1. Components of spending on the EU's Common Agricultural Policy, billion EUR

Source: developed by the authors based on the European Commission (2024)

The data in Figure 1 show that non-production payments account for a significant part of the structure of farm support costs in EU countries. The CAP programme also provides compensation for the provision of public goods, for compliance with agricultural practices that are useful for climate, for spatial and landscape planning, the viability of the rural economy, public health, product quality, etc. Ukraine needs to take the new CAP policy 2023-2027 as a tie-in

and not repeat the mistakes that took place in the CAP of previous years: the lack of motivation of agricultural producers to increase labour productivity, undermining fiscal stability, the implementation of mandatory measures by farmers without achieving the necessary results, trade conflicts in the international arena. In 2024, in order to prepare the agricultural sector for Ukraine's accession to the EU and harmonise the state agrarian policy to the requirements of

the EU, the Strategy for the development of Agriculture and rural areas in Ukraine for the period up to 2030 (Resolution of the Cabinet of Ministers of Ukraine No. 1163-2024-p, 2024).

In 2020, the European Commission, as the basis of the European Green Deal, published the strategies “Farm to Fork” (European commission, 2020a), and “Biodiversity” (European commission, 2020b), which impose restrictions on agriculture by targeted reduction of 10% of the use of agricultural land under landscape features of high diversity and 50% of pesticides, reduction of nutrient losses by at least 50% in the absence of deterioration of soil fertility, increase to 25% of the area of agricultural land in the European Union under organic farming (OECD, 2023). Before implementing individual tools and forms of support for farmers, European scientists often assess their impact on agriculture using economic and mathematical models. To assess EU policy at the macro or meso level as noted by A. Gonzalez-Martinez, *et al.* (2021), large-scale models are used: MAGNET, AGMEMOD, BATModel. L.C. Smith *et al.* (2018) evaluated the impact of the transition on organic agricultural production in England and Wales using a large-scale linear programming model. In their report, J. Barreiro-Hurle *et al.* (2021) proved that the goals set out in the “Farm to Fork” and “Biodiversity” strategies can be included in CAP analysis using existing tools, in particular the CAPRI model. If the prices of agricultural products in the study can be accepted as exogenous variables, then linear programming models can be used. If product prices are endogenous variables and need to be determined during the implementation of the model, it is advisable to use partial equilibrium models of the AGMEMOD type.

To investigate the impact of implementing the “Farm to Fork” and “Biodiversity” strategies

in agricultural production in Ukraine, a linear programming model was used to optimise the production structure of production, which was supplemented by the conditions for providing state support to agricultural enterprises (equations 1-8). Based on the aggregated data of agricultural enterprises of Ukraine in 2023, a model for optimising their production structure was formed. The adequacy of the developed model was checked by comparing the actual indicators for 2023 with the calculated indicators for the model. After the development of an adequate model, the results of calculations on it became the basis (and scenario) for comparing the results of calculations on the model, which included restrictions on Agriculture provided for by the strategies “Farm to Fork” and “Biodiversity” (scenario 2).

When modelling goals to reduce the use of pesticides and fertilisers, additional changes in other costs and yields were assumed. The goals of reducing the use of pesticides and fertilisers, and increasing the area under organic production were considered by introducing variables that reflect individual crop cultivation technologies into the model. Unlike econometric models (Barreiro-Hurle *et al.*, 2021) linear programming models have this capability. E. Anastasiou *et al.* (2023) proved the need to use precision farming technologies, as this contributes to increasing crop yields and animal productivity, reducing costs, and optimising the use of technological resources. The difference in crop acreage, production and sales volumes, livestock and poultry, and financial results calculated according to the two scenarios showed a significant impact of the political decision on the future implementation of the “Farm to Fork” and “Biodiversity” strategies on agricultural production in Ukraine (Table 4).

Table 4. Production and sale of crop production in agricultural enterprises of Ukraine (according to 2023 data)

Culture	Sown area, thous. ha			Gross production, thous. tonnes			Sales of products, thous. tonnes		
	Scenario 1*	Scenario 2**	Scenario 1 in % to Scenario 2	Scenario 1	Scenario 2	Scenario 1 in % to Scenario 2	Scenario 1	Scenario 2	Scenario 1 in % to Scenario 2
Cereals and legumes	7,889.4	7,548.1	95.7	47,894.6	43,503.7	90.8	38,796.0	34,276.8	88.4
Industrial oilseeds	7,622.4	6,240.6	81.9	19,986.9	15,779.8	79.0	17,538.5	14,366.7	81.9
Sugar beet	238.1	273.4	114.8	12,690.0	14,280.8	112.5	12,690.0	14,280.8	112.5

Table 4, Continued

Culture	Sown area, thous. ha			Gross production, thous. tonnes			Sales of products, thous. tonnes		
	Scenario 1*	Scenario 2**	Scenario 1 in % to Scenario 2	Scenario 1	Scenario 2	Scenario 1 in % to Scenario 2	Scenario 1	Scenario 2	Scenario 1 in % to Scenario 2
Potatoes	14.8	14.8	100.3	423.8	403.8	95.3	291.0	270.6	93.0
Vegetables	26.3	27.8	105.9	954.3	959.7	100.6	668.0	671.8	100.6
Grapes	15.1	16.04	106.2	224.9	239.0	106.3	213.7	227.0	106.2
Garden	36.46	37.8	103.7	557.9	578.3	103.7	530.0	549.4	103.7

Note: *Scenario 1 (existing production structure 2023); ** Scenario 2 (optimal production structure with limitations of the “Farm to Fork” and “Biodiversity” strategies)

Source: developed by the authors based on the State Statistics Service of Ukraine (2024) and the results of calculations using the model

The data in Table 4 show that due to the need to comply with restrictions on the use of resources when implementing European Green Deal strategies, the area of arable land in agricultural enterprises will decrease by 1,577.3 thous. ha. The acreage under grain and leguminous crops decreases mainly due to a decrease in the area under wheat, but their share in the structure of acreage increases from 48.7% to 51.6%. Due to the need to comply with scientifically based crop rotations, the area under sunflower will decrease by 1,569.5 thous. ha, while the area under soybeans will increase to 1,755.5 thous. ha. Increasing the area under perennial plantings

will help to reduce greenhouse gas emissions. Restrictions on the use of mineral fertilisers and pesticides in the second scenario will lead to a decrease in crop yields and, together with a decrease in acreage, will lead to a decrease in grain production by 9.2%, oilseeds by 21.0%. Accordingly, the volume of sales of these products will also decrease. An increase in organic crop production leads to an increase in the number of animals by about 10% (scenario 1 – the existing production structure in 2023; scenario 2 – the optimal production structure with restrictions on the “Farm to Fork” and “Biodiversity” strategies) (Table 5).

Table 5. Production and sale of livestock products in agricultural enterprises of Ukraine (according to 2023 data)

	Livestock, thous. units			Gross production, thous. tonnes			Sales of products, thous. tonnes		
	Scenario 1	Scenario 2	Scenario 1 in % to Scenario 2	Scenario 1	Scenario 2	Scenario 1 in % to Scenario 2	Scenario 1	Scenario 2	Scenario 1 in % to Scenario 2
Cows	382.2	420.4	110.0	2,892.5	3,181.7	110.0	2,805.7	3,086.3	110.0
Young bovine cattle	542.7	597.0	110.0	135.1	148.7	110.0	86.8	95.5	110.0
Pigs, thous. units	3,347.9	3,703.8	110.6	582.5	644.5	110.6	405.1	448.2	110.6
Sheep, thous. units	129.7	143.0	110.3	1.7	1.9	109.4	1.3	1.4	106.7
Poultry, million units	101.8	107.2	105.3	1,487.3*	1,546.7	104.0	1,189.8	1,237.4	104.0
				5,644.4**	6,011.3	106.5	5,080.0	5,410.2	106.5

Note: *poultry meat, ** eggs, million units

Source: developed by the authors based on the State Statistics Service of Ukraine (2024) and the results of calculations using the model

The volume of milk production and sales under the second scenario will increase by 10.0% compared to the first scenario. However,

the volume of meat production and sales will increase by an average of 6.1%, eggs – by 6.5%. Modelling of decision-making on the

implementation of the “Farm to Fork” and “Biodiversity” strategies in agricultural production

in Ukraine showed their negative economic impact (Table 6).

Table 6. Results of calculation of financial results of modelling decision-making on the implementation of the “Farm to Fork” and “Biodiversity” strategies in agricultural production in Ukraine (according to 2023 data)

Indicator	Scenario 1	Scenario 2	Scenario 1 in % to Scenario 2
Gross output, billion UAH	939.1	837.7	89.2
Revenue, billion UAH	769.9	682.9	88.7
Cost of products sold, billion UAH	580.1	545.7	94.1
Profit, billion UAH	139.1	96.5	69.4
Level of profitability, %	24.0	17.7	-6.3

Source: developed by the authors based on the State Statistics Service of Ukraine (2024) and the results of calculations using the model

When implementing the “Farm to Fork” and “Biodiversity” strategies in agricultural production of Ukraine, the value of gross output of agricultural enterprises may decrease by 10.8%, the amount of cash receipts from sales of products – by 11.7%, and the amount of profit – by UAH 42.5 billion (USD 1.02 billion per 1 ha of agricultural land that is in use by agricultural enterprises will amount to about UAH 2,387.5 (USD 57.6). This suggests that raising environmental standards for agriculture and food can increase the cost of producing individual products in the short term and negatively affect the competitiveness of products. Therefore, as compensation for additional expenses incurred and lost income incurred in connection

with the obligations taken by agricultural enterprises to introduce climate and environmentally friendly methods of farming or for stimulating the provision of public goods in the system of state support for economic entities in the agricultural sector of Ukraine, it is necessary to include payments under “eco-schemes” by analogy with EU member states. As a result of the implementation of the economic and mathematical model based on equations (1-8), the areas of distribution of UAH 4.0 billion (the average amount of funds allocated in the state budget in 2019-2021 directly to support the production of agricultural products) of state support funds for rural producers were also established (Table 7).

Table 7. Grouping of food products in the consumer basket, taking into account

Areas of state support for rural producers	Amount of state support funds, UAH billion
Partial compensation of interest on short-term loans	0.6
Partial compensation for the cost of Ukrainian-made agricultural machinery	1.32
Financial support for the development of animal husbandry	0.82
Financial support for development, horticulture, viticulture, and hop growing	0.49
Partial reimbursement of premises for storage and processing of agricultural products	0.77

Source: developed by the authors based on the results of calculations using the model

The data in Table 7 indicate that the main areas of distribution of state support funds for rural producers should be:

- partial compensation of interest on short-term loans to agricultural producers who suffered significant losses during the Russian occupation or as a result of military operations to restore agricultural production;

- partial compensation of the cost of Ukrainian-made agricultural machinery for the introduction of climatic and environmentally friendly agricultural methods by agricultural producers;

- financial support for the development of animal husbandry to stimulate an increase in production to provide the population of Ukraine

with food products of its own production (milk, beef, pork), to improve the conditions of keeping animals and preserve jobs in rural areas;

- financial support for development, horticulture, viticulture, and hop production to encourage increased production, save jobs in rural areas and reduce greenhouse gas emissions.

- partial reimbursement of premises for storage and processing of agricultural products will contribute to the creation of new enterprises that will operate in Ukraine and focus on export. Such projects will help to solve the problem of surplus products, produce products with higher positive costs, create new jobs, and provide jobs for related industries.

The results obtained in the course of research based on the assumptions and limitations of the model are somewhat conditional and should not be perceived as an accurate quantitative impact that will be realised if the green course goals are achieved. However, they can be useful for preliminary analysis of the impact of implementing the European Green Deal goals. The adequacy of the results obtained using economic modelling is evidenced by the results of other researchers. Results of the study by F. Baquedano *et al.* (2022) showed that policies that restrict the use of agricultural resources under the EU's "Farm to Fork" strategy reduce production volumes, farmers' incomes, and raise food prices, which could eventually lead to increased food security, which ranges from 30 million (EU only) to 171 million (global) by 2030.

Results of the study by L.C. Smith *et al.* (2018) based on economic simulations of the productive impact of the large-scale transition to organic farming in England, evidence of a 36% decline in food production in terms of metabolic energy from conventional agriculture. J. Barreiro-Hurle *et al.* (2021) noted that agro-economic models cannot reproduce reality in all its complexity and therefore have certain disadvantages and limitations that should be considered and that affect the results of studies based on such models. The experience of using CAP in EU member states showed that improving the productivity of the agricultural sector and its environmental sustainability can be compatible with increasing the share of spending on innovation, information, training, and advice.

Achieving the ambitious goals of the European Green Deal will require the introduction of new tools for the system of state support for business structures in the agricultural sector, rethinking the role and significance of individual payments, innovations and information support, and the adoption of new approaches to the provision of environmental services. All these tools of the system of state support for business structures, firstly, cannot be reflected in a mathematical model, and secondly, there is a lack of information about the impact of these tools on the economic, social, and environmental parameters of agricultural development. The performance of the state support system for agricultural enterprises is shaped by additional factors that must also be taken into account when forecasting the sector's future development.

In their study, M. Beck *et al.* (2021) noted the positive impact of the political instruments and measures of the Common Agricultural Policy (CAP) on knowledge sharing, advisory services and innovation, which will make a significant contribution to improving the productivity and sustainability of the EU's agricultural and food sectors. R. Vos *et al.* (2022), in the report on agricultural support policy reform, noted that better results could be achieved if even a small portion of agricultural subsidies were reconfigured to investment in research and development that focuses on productivity-enhancing and emission-reducing technologies. T. Šumrada *et al.* (2021) noted that environmental monitoring and reporting under CAP are insufficient, especially for biodiversity. Therefore, this area of activity requires increased investment in equipment, human resources, training, etc. A. Gulati *et al.* (2021) pointed to the need for coherence in the use of tools and proved that the most expensive and controversial agricultural policies in India were led precisely by the inconsistency of government measures to improve national food security, maintain low food prices for large numbers of low-income people and improve the well-being of farmers.

E.D. Concepción *et al.* (2020) highlighted the need to set clear priorities for biodiversity conservation and restoration, which must be consistent with the Green Deal, "Farm to Fork", and "Biodiversity" strategies. The chosen

instruments of agricultural policy and the size of the budget should ensure effective and timely achievement of ambitious goals. The priority area of the state support system in the post-war period in Ukraine will be the restoration of the productive potential of the agricultural sector. According to A. Dibrova *et al.* (2023), to restore the activities of an agricultural enterprise in de-occupied territories specialising in grain production and oilseed cultivation, the fixed capital requirement per hectare of crops is approximately USD 1,370-1,500, and the working capital requirement is USD 1,340-1,400.

G. Pe'er *et al.* (2022) noted in their paper that CAP 2023-2027 has opportunities to solve the problem of preserving biodiversity and neutralising climate crises. However, its implementation does not guarantee success, as changes in the new CAP are insignificant compared to the challenges of preserving biodiversity and combating climate change. In addition, many EU member states do not have the capacity to achieve the Sustainable Development Goals because they do not have systems for developing strategic plans, monitoring and reporting. Therefore, in the Strategy for the development of agriculture and rural areas in Ukraine for the period up to 2030, a prominent place is given to highlighting the organisational basis for implementing state support in the agricultural sector (Resolution of the Cabinet of Ministers of Ukraine No. 1163-2024-P, 2024). However, J. Barreiro-Hurle *et al.* (2021) still proved that mathematical models remain a powerful tool for assessing the impact of policies on agricultural development, provided that they are designed to cover as much as possible all aspects related to economic, social and environmental parameters.

The process of Ukraine's integration into the EU requires a reorientation of agricultural policy to European values: ensuring stable food supplies; promoting the competitiveness of agricultural entities; promoting fair trade; protecting the environment and sustainable resource management, combating climate change; restoring lost biodiversity. To achieve this, Ukraine must design state support tools and mechanisms for agricultural producers that promote socially, economically, and environmentally sustainable

development of the sector. In modernizing its system of public assistance for agricultural businesses, Ukraine can benefit from drawing on the extensive experience of the European Union's Common Agricultural Policy.

CONCLUSIONS

In Ukraine, there is still no clear system of measures of state support for business entities in the agricultural sector, a system of principles and criteria for providing state support. In 2019-2021, the share of business entities in the agricultural sector that received state support in their total number did not exceed 18%. Unlike the support system in Ukraine, in the new CAP 2023-2027 of the EU member states, each measure of state support for farmers is part of the overall system of state support, is consistent with other measures and has a clear legislative basis. The process of implementation and effective application of the tools and standards of the CAP of the EU member states, which ensures the social, economic, and environmental development of agriculture, poses a serious challenge to the government of Ukraine in the face of incompleteness of agricultural regulations and legislative acts, incompleteness of the system of organisation and infrastructure of support for agriculture with limited financial resources during the war period. Between 2019 and 2023, government support for agricultural producers in Ukraine, measured using the OECD approach, amounted to an average of only 0.88% of gross farm revenues, compared to 17.34% in EU member states. On a per-hectare basis, Ukraine received an average of USD 7.12, whereas agricultural producers in the EU received about USD 601.88 per hectare.

The process of harmonising the state agrarian policy of Ukraine to the requirements of the EU and achieving the goals of the European Green Deal and sustainable development will lead to changes in the production structure of agriculture and a decrease in its profitability. Therefore, in the system of state support for economic entities in the agricultural sector of Ukraine, it is necessary to include, by analogy with the EU member states, payments under "eco-schemes" as compensation for all or part of the additional costs and revenues

incurred, lost in connection with the obligations taken by agricultural enterprises to introduce climate and environmentally friendly methods of farming or for incentives and remuneration for the provision of public goods through agricultural practices that are useful for the environment and climate. To determine the impact of using certain levers of state support for agricultural production on the development of agriculture and to optimise the distribution of state support funds, it is advisable to use economic and mathematical methods and models. They can become an effective tool for making decisions on choosing priority

areas of state support for agricultural production. Further research should focus on improving agricultural sustainability management standards and tools and ensuring their compatibility with the EU CAP.

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REFERENCES

- [1] Agravery. (2025). *Third grant cycle in DAR: Applications from farmers will be accepted until January 24, 2025*. Retrieved from <https://agravery.com/uk/posts/show/tretij-grantovij-cikl-v-dar-zaavki-agrariiv-prijmatimut-do-24-sicna-2025-roku>.
- [2] Agribusiness of Ukraine 2023/24. (2024). *How agribusiness is transforming in wartime*. Retrieved from <https://agribusinessinukraine.com/>.
- [3] Anastasiou, E., et al. (2023). Precision farming technologies for crop protection: A meta-analysis. *Smart Agricultural Technology*, 5, article number 100323. doi: 10.1016/j.atech.2023.100323.
- [4] Baquedano, F., Jelliff, J., Beckman, J., Ivanic, M., Zereyesus, Y., & Johnson, M. (2022). Food security implications for low- and middle-income countries under agricultural input reduction: The case of the European Union's farm to fork and biodiversity strategies. *Applied Economic Perspectives and Policy*, 44(4), 1942-1954. doi: 10.1002/aep.13236.
- [5] Barreiro-Hurle, J., Bogonos, M., Himics, M., Hristov, J., Perez-Domínguez, I., Sahoo, A., Salputra, G., Weiss, F., Baldoni, E., & Elleby, C. (2021). *Modelling environmental and climatic ambition in the agricultural sector with the CAPRI model. Exploring the potential effects of selected farm to fork and biodiversity strategies targets in the framework of the 2030 climate targets and the post 2020 Common Agricultural Policy*. Luxembourg: Publications Office of the European Union. doi: 10.2760/98160.
- [6] Beck, M., et al. (2021). *Evaluation support study on the CAP's impact on knowledge exchange and advisory activities: Final report*. Luxembourg: Publications Office of the European Union. doi: 10.2762/045268.
- [7] Concepción, E.D., et al. (2020). Optimizing biodiversity gain of European agriculture through regional targeting and adaptive management of conservation tools. *Biological Conservation*, 241, article number 108384. doi: 10.1016/j.biocon.2019.108384.
- [8] Díaz, M., et al. (2021). Environmental objectives of Spanish agriculture: Scientific guidelines for their effective implementation under the Common Agricultural Policy 2023-2030. *Ardeola*, 68, 445-460. doi: 10.13157/arla.68.2.2021.fo1.
- [9] Dibrova, A., Ilchuk, M., Konoval, I., Androsovysh, I., & Zanizdra, A. (2023). State support for agriculture in Ukraine in the post-war period. *Agricultural and Resource Economics: International Scientific E-Journal*, 9(3), 49-76. doi: 10.51599/are.2023.09.03.03.
- [10] European Commission. (2019). *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions The European Green Deal (COM/2019/640 final)*. Retrieved from <https://eur-lex.europa.eu/legal-content/%20EN/TXT/?uri=COM%3A2019%3A640%3AFIN>.

- [11] European Commission. (2020a). *Communication from the commission to the European parliament, the Council, the European economic and social committee and the Committee of the regions. A Farm to Fork Strategy for a fair, healthy and environmentally-friendly food system*. Retrieved from <https://eurlex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC03817>.
- [12] European Commission. (2024). *Agriculture and development of rural areas*. Retrieved from <https://surl.it/apazqe>.
- [13] European Commission. (2020b). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, EU biodiversity strategy for 2030: Bringing nature back into our lives*. Retrieved from <https://surl.lu/kiqfjl>.
- [14] Gonzalez-Martinez, A., Jongeneel, R., & Salamon, P. (2021). Lighting on the road to explore future directions for agricultural modelling in the EU – some considerations on what needs to be done. *International Journal on Food System Dynamics*, 12(3), 287-300. doi: 10.18461/ijfsd.v12i3.91.
- [15] Government portal. (2024). *Report on the implementation of the Association Agreement between Ukraine and the European Union for 2024*. Retrieved from <https://surl.li/wibild>.
- [16] Gulati, A., Kapur, D., & Bouton, M. (2020). *Reforming Indian agriculture*. *Economic & Political Weekly*, 55(11).
- [17] Hryhorieva, Kh.A. (2024) State support for agriculture in the EU: Formation, trends, legal problems. *Analytical and Comparative Jurisprudence*, 4, 248-258. doi: 10.24144/2788-6018.2024.04.39.
- [18] Jeanneret, P., et al. (2021). An increase in food production in Europe could dramatically affect farmland biodiversity. *Communications Earth & Environment*, 2, article number 183. doi: 10.1038/s43247-021-00256.
- [19] Law of Ukraine No. 2629-VIII “On the State Budget of Ukraine for 2019”. Appendix 3. (2018, November). Retrieved from <https://zakon.rada.gov.ua/laws/show/2629-19#Text>.
- [20] Law of Ukraine No. 2710-IX “On the State Budget of Ukraine for 2023”. (2022, November). Retrieved from <https://zakon.rada.gov.ua/laws/show/2710-20#Text>.
- [21] Law of Ukraine No. 3460-IX “On the State Budget of Ukraine for 2024.” (2023, November). Retrieved from <https://zakon.rada.gov.ua/laws/show/3460-20#Text>.
- [22] Liga Zakon. (2025). *The Rada adopted the law on the State Agrarian Register: Main provisions*. Retrieved from https://jurliga.ligazakon.net/news/230634_rada-priynyala-zakon-pro-derzhavnyi-agrarniy-restr-osnovn-polozhennya.
- [23] Lupenko, Yu., Shpykuliak, O., Malik, M., Ksenofontova, K., & Morozova, A. (2023). Development of family farm enterprises in the conditions of wartime and implementation of the post-war reconstruction of Ukraine. *Agrarian Economy*, 16(1-2), 9-22. doi: 10.31734/agrarecon2023.01-02.009.
- [24] Malik, M., Shpykuliak, O., Kravchenko, S., Malik, L., & Yuzhykova, V. (2023). Development of farms in wartime conditions. *Ekonomika APK*, 30(1), 40-50. doi.org/10.32317/2221-1055.202301040.
- [25] Ministry of Agrarian Policy and Food of Ukraine. (2021). *Report on recipients of state support in the agribusiness sector*. Retrieved from <https://minagro.gov.ua/pidtrimka/zvit-shchodo-otrimuvachiv-derzhavnoyi-pidtrimki-v-galuzi-apk>.
- [26] Ministry of Agrarian Policy and Food of Ukraine. (2025a). *Grants for business creation: Grants for horticulture, berry growing and viticulture*. Retrieved from <https://surl.li/zwgrgm>.
- [27] Ministry of Agrarian Policy and Food of Ukraine. (2025b). *Grants for business creation: Grants for greenhouse farming*. Retrieved from <https://minagro.gov.ua/pidtrimka/hranty-dlia-stvorennia-biznesu/hranty-dlia-teplychnoho-hospodarstva>.
- [28] NISS. (2023). *State Budget of Ukraine for 2022: Implementation in the context of a full-scale war*. Retrieved from <https://surl.li/yikahg>.
- [29] O'Rourke, E., & Finn, J.A. (Eds). (2020). *Farming for nature: The role of results-based payments*. Wexford: Teagasc and National Parks and Wildlife Service (NPWS).

- [30] OECD. (2021). *Agricultural policy monitoring and evaluation 2021: Addressing the challenges facing food systems*. Paris: OECD Publishing. doi: [10.1787/2d810e01-en](https://doi.org/10.1787/2d810e01-en).
- [31] OECD. (2022). *Agricultural policy monitoring and evaluation 2022: Reforming agricultural policies for climate change mitigation*. Paris: OECD Publishing. doi: [10.1787/7f4542bf-en](https://doi.org/10.1787/7f4542bf-en).
- [32] OECD. (2023). *Agricultural policy monitoring and evaluation 2023: Adapting agriculture to climate change*. Paris: OECD Publishing. doi: [10.1787/b14de474-en](https://doi.org/10.1787/b14de474-en).
- [33] OECD. (2024). *Agricultural policy monitoring and evaluation 2024: Innovation for sustainable productivity growth*. Paris: OECD Publishing. doi: [10.1787/74da57ed-en](https://doi.org/10.1787/74da57ed-en).
- [34] Order of the Cabinet of Ministers of Ukraine No. 495-r "On the Issue of Directing Funds Attracted from the International Bank for Reconstruction and Development and the International Development Association to the Ministry of Agrarian Policy and Food". (2024, June). Retrieved from <https://zakon.rada.gov.ua/laws/show/495-2024-%D1%80#Text>.
- [35] Pe'er, G., et al. (2025). Role of science and scientists in public environmental policy debates: The case of EU agrochemical and nature restoration regulations. *People and Nature*, 7(8), 1772-1788. doi: [10.1002/pan3.70064](https://doi.org/10.1002/pan3.70064).
- [36] Pe'er, G., Lakner, S., & Candel, J. (2022). *Ukraine-Crisis impacts on food security: Tackling the short-term shock must be done with a vision in mind of the larger-scale and longer-term threats of the Climate- and Biodiversity-Crises*. Retrieved from <https://surl.li/rbxpxp>.
- [37] Program "Affordable Loans 5-7-9%". (2021). Retrieved from <https://surl.li/slxene>.
- [38] Resolution of the Cabinet of Ministers of Ukraine No. 1163-2024 "On the Approval of the Strategy for the development of Agriculture and Rural Areas in Ukraine for the Period up to 2030 and the Approval of the Operational Plan of Measures for its Implementation in 2025-2027". (2024, November). Retrieved from <https://zakon.rada.gov.ua/laws/show/1163-2024-%D1%80>.
- [39] Resolution of the Cabinet of Ministers of Ukraine No. 275-2024-P "On Amendments to the Resolutions of the Cabinet of Ministers of Ukraine dated May 27, 2013 No. 369 and dated March 1, 2017 No. 130". (2024, March). Retrieved from <https://zakon.rada.gov.ua/laws/show/275-2024-%D0%BF#Text>.
- [40] Resolution of the Cabinet of Ministers of Ukraine No. 300 "On Approval of the Procedure for the Use of Funds Provided in the State Budget for Financial Support of Activities in the Agro-Industrial Complex by Making Loans Cheaper". (2015, April). Retrieved from <https://www.kmu.gov.ua/npas/248166183>.
- [41] Resolution of the Cabinet of Ministers of Ukraine No. 950-2025-P "On Approval of the Procedure for the Use of Funds Provided in the state Budget for State Support for the Development of Livestock Breeding and Processing of Agricultural Products". (2025, August). Retrieved from <https://zakon.rada.gov.ua/laws/show/950-2025-%D0%BF#n141>.
- [42] Resolution of the Cabinet of Ministers of Ukraine No. 738-2022-P "Some Issues of Providing Business Grants". (2022, June). Retrieved from <https://zakon.rada.gov.ua/laws/show/738-2022-%D0%BF#Text>.
- [43] Shelenko, D., Dyuk, A., & Matsola, M. (2023). State regulation of the development of agricultural entrepreneurship in the context of systemic security challenges. *Economy and Society*, 56. doi: [10.32782/2524-0072/2023-56-67](https://doi.org/10.32782/2524-0072/2023-56-67).
- [44] Smith, L.C., Jones, P.J., Kirk, G.J.D., Pearce, B.D., & Williams, A.G. (2018). Modelling the production impacts of a widespread conversion to organic agriculture in England and Wales. *Land Use Policy*, 76, 391-404. doi: [10.1016/j.landusepol.2018.02.035](https://doi.org/10.1016/j.landusepol.2018.02.035).
- [45] State Agrarian Register. (2025). Retrieved from <https://www.dar.gov.ua/>.
- [46] State Statistics Service of Ukraine. (2024). *Agriculture, forestry and fisheries*. Retrieved from <http://www.ukrstat.gov.ua>.
- [47] Šumrada, T., Vreš, B., Čelik, T., Šilc, U., Rac, I., Udovč, A., & Erjavec, E. (2021). Are result-based schemes a superior approach to the conservation of High Nature Value grasslands? Evidence from Slovenia. *Land Use Policy*, 111, article number 105749. doi: [10.1016/j.landusepol.2021.105749](https://doi.org/10.1016/j.landusepol.2021.105749).

- [48] USAID Project. (2025). *Economic support for Ukraine*. Retrieved from <https://era-ukraine.org.ua/>
- [49] Vos, R., Martin, W., & Resnick, D. (2022). *The political economy of reforming agricultural support policies*. Washington: International Food Policy Research Institute (IFPRI). doi: 10.2499/p15738coll2.136545.
- [50] Zaburanna, L., Klymenko, N., Poprozman, N., & Poprozman, O. (2014). *Optimization methods and model*. Kyiv: Kompryn.
- [51] Zinchuk, T.O., & Kutsmus, N.M. (2023). The EU Common Agricultural Policy for 2023-2027: Ambitions and relevance to the sustainable development goals. *Economy of Ukraine*, 11(744), 76-96. doi: 10.15407/economyukr.2023.11.076.

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Державна підтримка підприємницьких структур аграрного сектора економіки України

Анотація. Актуальність дослідження зумовлена перш за все більшою невизначеністю бізнесу у сільському господарстві порівняно з іншими секторами та його провідним місцем в економічному розвитку України, необхідністю зміцнення продовольчої безпеки, розвитку сільських територій та охорони навколишнього середовища. Метою дослідження була порівняльна оцінка рівнів і тенденцій державної підтримки суб'єктів господарювання сільського господарства України та країн-членів ЄС загалом, визначення економічних наслідків впровадження стратегій «Farm to Fork» та «Біорізноманіття» в сільськогосподарське

виробництво України та удосконалення інструменту прийняття рішень щодо державної підтримки підприємницьких структур аграрного сектора України у 2026-2030 роки. У процесі дослідження застосовувалися методи аналізу та синтезу, метод математичного моделювання, нормативний та розрахунково-конструктивний методи. У результаті дослідження було проаналізовано інструменти та напрями державної підтримки підприємницьких структур аграрного сектору України в умовах воєнного стану, подана порівняльна оцінка державної підтримки сільського господарства України та країн-членів ЄС в 2019-2023 рр. Встановлено, що впровадження стратегій «Farm to Fork» та «Біорізноманіття» може зменшити в короткостроковій перспективі в сільськогосподарських підприємствах обсяги виробництва зерна на 9,2 %, насіння олійних культур на 21,0 %, а величину прибутку на 1,02 млрд. дол. США або біля 57,6 дол. США у розрахунку на 1га сільськогосподарських угідь. Запропоновано математична модель для оцінки прийняття рішень щодо вибору пріоритетних напрямів державної підтримки сільськогосподарського виробництва. Практична цінність отриманих у процесі дослідження результатів полягає в можливості їх використанні центральними та регіональними органами виконавчої влади, які проводять аграрну політику, при прийнятті рішень щодо розвитку сільського господарства України

Ключові слова: підприємництво; сталий розвиток; аграрна політика; агропродовольча торгівля; фінансування; євроінтеграція