



UDC 338.432

Development of small businesses producing cereals, legumes, and sunflower seeds in wartime conditions

Mykola Malik

Doctor of Economic Sciences, Professor
National Scientific Centre "Institute of Agrarian Economics"
03127, 10 Heroiv Oborony Str., Kyiv, Ukraine
<https://orcid.org/0000-0001-9198-4460>

Svitlana Kravchenko*

Doctor of Economic Sciences, Professor
National Scientific Centre "Institute of Agrarian Economics"
03127, 10 Heroiv Oborony Str., Kyiv, Ukraine
<https://orcid.org/0000-0001-5541-4495>

Oleksandr Shpykuliak

Doctor of Economic Sciences, Professor
National Scientific Centre "Institute of Agrarian Economics"
03127, 10 Heroiv Oborony Str., Kyiv, Ukraine
<https://orcid.org/0000-0001-5257-5517>

Henrikh Hudz

PhD in Economic Sciences, Assistant
Taras Shevchenko National University of Kyiv
01601, 64/13 Volodymyrska Str., Kyiv, Ukraine
<https://orcid.org/0000-0003-4931-3350>

► **Abstract.** Small businesses producing cereals, legumes, and sunflower seeds contribute to the country's food security and environmental protection potential. The purpose of this study was to substantiate the social, economic, and conceptual foundations of small business entities' activities in the production of cereals, legumes, and sunflower seeds in modern conditions. The methodological framework of the study included the provisions of institutional economic theory and functional analysis. To generalise the results, the study employed analysis, graphic, and abstract-logical methods, and approaches of generalisation of results. The motivational orientation of the functioning of small businesses engaged in the production of cereals, legumes, and sunflower seeds and their place in production and consumption were determined. The study found that in 2023, the company achieved a record grain yield of 51.8 100 kg/ha, which was driven by favourable weather conditions. It was substantiated that the cost of crop production has increased due to lower prices for agricultural products (maize by -41%; sunflower by -35%; wheat by -37%) and an almost twofold increase in the cost of plant protection products and fuel. It was proved that in 2017-2022, 91.79% of the variation in net profit is explained by the variation in the level of grain, legumes, and sunflower seeds sold by small businesses. It was found that the disruption of the sales system of small businesses producing cereals, legumes, and sunflower seeds, the low level of purchase prices and the considerable increase in prices for material and technical sources of survival and fertilisers due to the hostilities make production inefficient. The development of small businesses and family farming stays one of the priority areas of regional policy. The information and analytical material can be considered when creating regional programmes for the development of agrarian entrepreneurship

► **Keywords:** business entity; adaptation to martial law; small business structures; family farming; agricultural cooperative; private enterprises

► **Suggested Citation:** Malik, M., Kravchenko, S., Shpykuliak, O., & Hudz, H. (2024). Development of small businesses producing cereals, legumes, and sunflower seeds in wartime conditions. *Ekonomika APK*, 31(1), 41-53. doi: 10.32317/2221-1055.202401041.

*Corresponding author



Copyright © The Author(s). This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (<https://creativecommons.org/licenses/by/4.0/>)

► Introduction

The functioning of business entities in agriculture is of great importance in the system of ensuring national food security. Small businesses form an integral element of territorial entities. They have a special potential for shaping food systems. It was established that if the income of a business entity during its operation in the market environment does not exceed EUR 10 million in equivalent, then this entity is small (Filling out the simplified..., 2019). Certain indicators of the functioning of small businesses (up to 50 employees; up to EUR 8 million in net sales revenue; up to EUR 4 million in book value of assets) are set out in the Law of Ukraine “On Accounting and Financial Reporting in Ukraine” (Law of Ukraine No. 996-XIV..., 1999). It is necessary to form a balanced social, environmental, psychological, demographic, and economic activity of rural communities. For this purpose, priority support for small businesses and various forms of their cooperation are of particular importance.

To expand the competitive potential of small and medium-sized enterprises, activate the mechanism of obtaining socio-economic benefits and the potential for survival in extreme conditions, economists J.M. Lopes & S. Gomes (2022) have actualised the attention to the components of the mechanism of sustainable and innovative strategic management. The imperfection of the organisation of the controlling system of small business entities, which affects the growth of production costs, is proved. The researchers substantiate the need to improve the organisation of the internal control system in terms of reorientation to active forms of control to identify the causes and ways to eliminate shortcomings (Kaliuha & Hryshchuk, 2023).

K. Kusnandar *et al.* (2023) substantiated, considering the provisions of behavioural theory and some aspects of organisational culture, the need to develop an innovative culture in the agribusiness of small businesses. The purpose of the model is to change the mindset of small businesses towards innovation, where innovation is considered as a condition for success. It was substantiated that innovative behaviour is reflected in the development of new product variants, the use of e-commerce for sales and the improvement of production technology to increase cost efficiency. Creating a culture of innovation among small businesses will allow them to compete, develop, and become more sustainable. O. Litvak & S. Litvak (2023) have formed a comprehensive approach to the implementation of the principles of the circular economy in agriculture and the agro-industrial complex. The need to implement circular business models and innovative resource-saving technologies is becoming increasingly important. Furthermore, it was substantiated that the activities of small businesses are impossible without cooperation with scientific and educational institutions. The study identified specific sectoral features of readiness to implement innovative ideas and developments.

Researchers have established that small businesses that are risky for investment are the driving force behind economic development. It was found that outdated equipment and technologies are a considerable problem in the operation. Additional financing of small business

entities will help to reveal the investment attractiveness of operation; to reduce the environmental consequences of activities; implement new methods of storage, processing and sales of products; use drones and modern monitoring systems, etc. (Sahachko *et al.*, 2023). S.N. Mohamad Fauzi *et al.* (2023) assessed the risk factors in the market environment for the activities of small businesses in the market environment. As a result of the risk identification and assessment, it was found that the qualities of an entrepreneur are the key risk factor in business.

In the study, the researchers addressed the feasibility of small businesses, the specific features of their development and capital dynamics. The study of the functioning and development of business entities in the context of armed conflict focuses on the possibilities of increasing competitive advantages and investment attractiveness, the system of making the best management decisions, the components of the economic mechanism of adaptation to extreme conditions and allows formulating key aspects of using their potential in the field of food security. However, some issues of the mechanism of functioning of small entrepreneurial structures in the current conditions are not sufficiently covered. Therefore, the purpose of this study was to assess and substantiate the conceptual and some applied principles of socio-economic relations of small entrepreneurial structures in rural areas from the standpoint of the system approach.

► Materials and Methods

The information base of the study included the Law of Ukraine No. 996-XIV “On Accounting and Financial Reporting in Ukraine” (1999); Law of Ukraine No. 2524-IX “On Official Statistics” (2022); Resolution of the Cabinet of Ministers of Ukraine No. 916 “On Amending the Resolutions of the Cabinet of Ministers of Ukraine No. 28 dated January 24, 2020, and No. 723 dated July 14, 2021” (2022). The authors used the publications of the international agency (Agriculture Resilience Initiative – Ukraine..., n.d.), as well as data from national agencies: Agravery, Ukrinform, etc. The study is based on the works of international researchers (Abu Hasan *et al.*, 2022; Abdul Rahman & Abdul Rahim, 2023). Furthermore, the study used the findings of Ukrainian researchers (Kyfyak *et al.*, 2022; Parkhomets & Uniat, 2022; Klius *et al.*, 2023) on the development of processes of adaptation of business entities in the agricultural sector of the Ukrainian economy to wartime activities, etc.

The methodological framework of this study included the positions of systemic functional analysis and the concept of institutionalisation. The methods of logic and abstraction were used to determine the essence of the processes of survival of economic entities in crisis conditions. To implement empirical assessments of the activities of small businesses, the study used analysis, graphical, and regulatory methods; approaches to generalising the results for formulating proposals; and establishing interrelationships in characterising the development of individual groups of small businesses.

The parameters a_0 , a_1 are found using the least-squares method, which involves the formulation and solution of a system of normal equations:

$$y = a_0 + a_1 \cdot x, \quad (1)$$

$$\begin{cases} a \cdot \sum x^2 + b \cdot \sum x = \sum x \cdot y \\ a \cdot \sum x + b \cdot n = \sum y \end{cases}, \quad (2)$$

where y is the theoretical value of the resultant attribute; a_0 is the starting point, provided that $x=0$; a_1 is the regression coefficient; x is the value of the factor attribute; n is the number of observations.

By solving it, we obtain the values of the coefficients a_0 ; a_1 and the analytical expression of the dependence:

$$y = a_0 + a_1 \cdot x. \quad (3)$$

In addition, for a system of two linear equations with two unknowns, the Kramer formulas are calculated as follows:

$$x_1 = \frac{\Delta_1}{\Delta}; x_2 = \frac{\Delta_2}{\Delta}, \quad (4)$$

where x_1 and x_2 are the unknown elements of the system, Δ is the determinant of the system matrix, Δ_1 and Δ_2 are the determinants of the matrices A_1 and A_2 , respectively, A_1 and A_2 are the matrices obtained from the system matrix by replacing the corresponding column with the vector of the right-hand sides of the system.

Correlation and determination coefficients are calculated using the following formulas:

$$r = \frac{\sum(t_{x_i} \times t_{y_i})}{n} = \frac{\sum x_i \times y_i}{\sum x_i \times \sum y_i}, \quad (5)$$

$$t_x = \frac{x_i - \bar{x}}{\sigma_x}; \quad t_y = \frac{y_i - \bar{y}}{\sigma_y}, \quad (6)$$

$$\sigma_x = \sqrt{\frac{\sum(x_i - \bar{x})^2}{n}}; \quad \sigma_y = \sqrt{\frac{\sum(y_i - \bar{y})^2}{n}}, \quad (7)$$

$$d = r^2, \quad (8)$$

where \bar{y} is the average value of the resultant attribute; \bar{x} is the average value of the factor attribute; i is the experiment; r is the linear correlation coefficient; t_x , t_y is the intermediate indicators for calculation; σ_x is the standard deviation of the factor attribute; σ_y is the standard deviation of the resultant attribute; d is the coefficient of determination (or the square of the correlation coefficient). The calculation of the coefficient of determination helps to cover the share of the total variation of the resultant attribute that is revealed by the factor attribute.

Web-based versions of Word, Excel, and trend analysis were used to calculate and forecast annual changes in agricultural sales and net profit for 2030.

► Results and Discussion

Small businesses, due to their mobile management system and compact production, are more adapted to wartime operations. Therefore, in the long term, the development of small businesses and family farms should be promoted, which ensure job security and environmental protection. In the conditions of martial law, the perspective of the institution of self-sufficiency and the provision of food aid to other citizens increases, and the development of rural social capital also gains priority. The economic performance indicators of the operating business entities engaged in the production of cereals, legumes, and sunflower seeds in 2018-2023 are covered in Tables 1-3.

Table 1. Number of operating businesses and employed workers in the production of grains, legumes, and sunflower seeds in 2018-2022

Indicators	2018	2019	2020	2021	2022	2022 in % to 2018
Number of operating entities, pcs., incl:						
Large	17	25	28	41	32	+146.2
Average	1,459	1,451	1,351	1,333	1,099	-27.74
Small	39,730	39,411	39,152	37,576	34,909	-11.65
Micro	35,607	35,250	34,996	33,230	31,040	-12.43
Number of employees, persons, incl.:						
Large	24,712	30,125	27,863	34,660	27,111	+22.69
Average	189,847	176,491	161,428	152,779	n/a	-19.5*
Small	181,923	178,576	177,203	186,426	n/a	+2.47*
Micro	86,897	81,898	81,548	87,475	78,616	-9.90

Note: * – 2021 in % to 2018; n/a – data are not disclosed following the requirements of the Law of Ukraine “On Official Statistics” to ensure the guarantees of state statistics authorities on statistical confidentiality (Law of Ukraine No. 2524-IX “On Official Statistics”, 2022)

Source: Official website of the State Statistics Service of Ukraine (n.d.)

Table 2. Number of registered legal entities and individuals-entrepreneurs engaged in the cultivation of cereals, legumes, and sunflower seeds in 2022-2023, units

Years	In agriculture – total		Growing cereals, legumes, and sunflower seeds	
	Legal entities	Individuals-entrepreneurs	Legal entities	Individuals-entrepreneurs
01.01.2022	71,094	16,011	56,385	8,437
01.04.2022	71,556	16,617	56,819	8,897
01.07.2022	71,902	17,183	57,111	9,311

Table 2, Continued

Years	In agriculture – total		Growing cereals, legumes, and sunflower seeds	
	Legal entities	Individuals-entrepreneurs	Legal entities	Individuals-entrepreneurs
01.10.2022	72,218	17,729	57,352	9,552
01.01.2023	72,466	17,825	57,536	9,665
01.04.2023	72,864	18,315	57,875	10,006
01.07.2023	73,228	18,846	58,148	10,190
01.10.2023	73,522	19,270	58,318	10,345
01.10.2023 in % to 01.10.2022	+1.805	+8.692	+1.684	+8.302

Source: Official website of the State Statistics Service of Ukraine (n.d.)

Table 3. Key indicators of economic activity of operating business entities engaged in the production of grains, legumes, and sunflower seeds in 2018-2022 (UAH million; constant 2016 prices; end of year)

Indicators	2018	2019	2020	2021	2022	2022 in % to 2018
Sown area updated, thous. ha						
Cereals and pulses	14,839	15,318	15,392	15,995	12,171	-19.97
Sunflower	6,117	5,928	6,457	6,622	5,293	-13.47
Rapeseed	1,042	1,282	1,127	1,311	1,186	+13.81
Production of cereals and pulses by harvested area, thous. t:						
up to 100 ha	2,227.5	2,426.4	1,934.0	2,699.1	1,792.0	-19.55
100.01-200.00 ha	2,050.8	2,388.3	1,899.5	2,717.7	1,828.9	-10.82
200.01-500.00 ha	6,052.8	6,334.1	5,410.0	7,596.6	4,957.7	-18.09
500.01-1,000.00 ha	9,066.3	9,941.4	8,300.4	11,352.0	7,210.8	-20.47
1,000.01-2,000.00	13,682.8	14,031.0	11,694.6	15,567.4	9,469.2	-30.79
2,000.01-3,000.00	7,359.4	7,667.6	6,694.1	8,977.9	5,055.9	-31.30
over 3,000.01	15,656.6	17,193.3	15,785.4	20,778.4	12,000.7	-23.35
Production of cereals and pulses by category of farms, thous. t						
Farms of all categories	70,056.5	75,143.2	64,933.4	86,010.4	53,863.7	-23.11
Enterprises	56,096.2	59,982.1	51,718.0	69,689.1	42,315.2	-24.57
incl. farms	10,104.9	11,489.7	9,649.1	14,195.4	8,407.1	-16.80
Households	13,960.3	15,161.1	13,215.4	16,321.3	11,548.5	-17.28
Sunflower production by harvested area, thous. t:						
up to 100 ha	952.2	1,051.2	771.2	1,060.2	733.0	-23.02
100.01-200.00 ha	990.5	1,090.2	829.3	1,136.8	762.4	-23.03
200.01-500.00 ha	2,609.3	2,830.2	2,267.4	2,797.5	1,901.8	-27.11
500.01-1,000.00 ha	2,722.8	2,865.6	2,496.8	2,940.4	1,866.8	-31.44
1,000.01-2,000.00	2,688.5	2,819.5	2,458.9	2,873.1	1,836.6	-31.69
2,000.01-3,000.00	1,033.5	1,178.5	1,070.9	1,386.9	938.1	-9.23
over 3,000.01	1,196.8	1,253.4	1,598.4	2,019.1	1,950.1	+62.9
Sunflower production by farm category, thous. t						
Farms of all categories	14,165.2	15,254.1	13,110.4	16,392.4	11,328.8	-20.02
Enterprises	12,193.6	13,088.6	11,492.9	14,214.0	9,988.8	-18.08
incl. farms	2,811.6	3,098.9	2,465.4	3,308.9	2,078.8	-26.06
Households	1,971.6	2,165.5	1,617.5	2,178.4	1,340.0	-32.03
Yield of cereals and pulses, tonnes 100 kg/ha of harvested area:						
up to 100 ha	33.2	35.8	30.2	41.3	36.4	+9.63
100.01-200.00 ha	41.2	44.6	36.6	49.8	42.1	+2.18
200.01-500.00 ha	45.7	47.6	40.0	53.5	44.3	-3.06
500.01-1,000.00 ha	47.9	50.3	42.2	56.0	47.0	-1.88
1,000.01-2,000.00	52.1	52.7	46.3	57.9	49.1	-5.76
2,000.01-3,000.00	54.9	56.2	48.6	61.5	53.2	-3.10

Table 3, Continued

Indicators	2018	2019	2020	2021	2022	2022 in % to 2018
over 3,000.01	65.6	65.4	56.6	70.4	61.2	-6.71
Yields of cereals and pulses by category of farms, 100 kg/ha of harvested area						
Farms of all categories	47.4	49.1	42.5	53.9	45.8	-3.38
Enterprises	52.2	53.7	46.4	59.3	50.3	-3.64
incl. farms	41.1	44.0	37.4	50.4	41.8	+1.70
Households	34.4	36.8	31.9	38.8	34.4	0
Sunflower yield, 100 kg/ha of harvested area						
up to 100 ha	19.4	21.8	16.4	21.6	18.2	-6.19
100.01-200.00 ha	23.5	26.4	19.6	25.0	19.9	-15.32
200.01-500.00 ha	24.5	26.8	20.7	25.4	20.9	-14.69
500.01-1,000.00 ha	24.5	27.1	20.8	25.7	21.2	-13.47
1,000.01-2,000.00	24.9	27.9	22.1	26.3	22.3	-10.44
2,000.01-3,000.00	25.1	27.9	24.7	26.8	25.4	+1.19
over 3,000.01	24.4	30.1	24.6	26.7	27.6	+13.11
Sunflower yield by farm category, 100 kg/ha of harvested area						
Farms of all categories	23.0	25.6	20.2	24.6	21.6	-6.09
Enterprises	24.1	27.0	21.4	25.6	22.4	-7.05
incl. farms	21.9	24.5	18.0	23.6	19.0	-13.2
Households	18.0	19.6	14.7	19.7	17.4	-3.33

Source: Official website of the State Statistics Service of Ukraine (n.d.)

In 2023, the total area under spring and winter grains was 10,895 thous. ha (down 980 thous. ha from 2022). Grain yields are at a record high (up to 51.8 hundred kg/ha) due to good weather conditions. Grain harvest volumes increased significantly. For instance, as of the beginning of August 2023, 16.574 million tonnes of grains and pulses were harvested on an area of 3,782 thous. ha with a yield of 44 hundred kg/ha (The Ministry of Agrarian Policy and Food increased..., 2023). As of the end of September 2023, entrepreneurs have

harvested 41.7 million tonnes of new crops: 30.5 million tonnes of grains and 11.2 million tonnes of oilseeds. Cereals and pulses were harvested on an area of 6,972 thousand hectares with a yield of 43.7 hundred kg/ha, and oilseeds were harvested on an area of 4,450 thous. ha (In Ukraine, 41.7 million tonnes..., 2023).

Next, the study considered the principal indicators of economic activity of existing small businesses engaged in the production of cereals, legumes, and sunflower seeds in 2017-2022 (Table 4).

Table 4. Key indicators of economic activity of existing small businesses engaged in the production of cereals, legumes, and sunflower seeds in 2017-2022 (UAH million; constant 2016 prices; end of year)

Indicators	2017	2018	2019	2020	2021	2022	2022 in % to 2017
Volume of products sold	154,849.8	174,096.0	181,054.8	210,913.6	293,060.5	224,195.6	+44.78
<i>Share of small businesses in the total volume of grain, legumes, and oilseeds sold, %</i>	43.68	42.71	41.24	43.35	39.97	41.64	-2.04
Net profit (loss)	23,772.1	20,604.4	18,321.3	32,230.7	85,053.8	28,832.9	+21.29
<i>Share of small entities in the total net profit from sales of cereals, legumes, and oilseeds, %</i>	41.03	33.14	21.78	39.99	37.81	33.63	-7.4
Level of profitability of operating activities, %	26.5	20.3	14.1	22.1	46.3	22.8	-3.7
Level of profitability of all activities, %	17.1	12.2	10.2	16.8	42.3	15.6	-1.5
Non-current assets	85,362.9	101,592.8	113,680.5	126,183.3	139,516.4	140,892.9	+65.06
Property, plant and equipment and intangible assets, incl.: Residual value	69,691.4	85,677.9	95,835.1	107,282.0	119,162.8	120,731.7	+73.23
Wear and tear	35,349.6	47,458.9	59,405.3	76,959.8	81,795.1	96,452.9	+172.8
Investment property	3.0	3.5	3.9	4.1	4.2	2.6	-0.4
Long-lived biological assets	722.7	840.9	834.7	987.3	1,119.7	1,170.4	+61.95
Capital investments in progress	5,338.3	4,153.1	4,612.4	5,975.3	6,734.7	6,479.1	+21.37

Table 4, Continued

Indicators	2017	2018	2019	2020	2021	2022	2022 in % to 2017
Long-term financial investments	5,453.9	7,419.9	6,944.1	7,574.5	8,734.9	7,837.9	+43.71
Other non-current assets	4,153.5	3,497.5	5,450.3	4,360.1	3,760.2	4,671.1	+12.46
Current assets	206,720.9	247,188.9	236,936.4	277,498.1	319,609.4	358,010.4	+73.18
Inventory	77,974.1	101,168.5	109,731.1	123,366.5	151,069.8	175,297.0	+124.8
Current biological assets	3,577.9	4,668.9	4,890.4	5,585.9	5,146.7	6,168.1	+72.39
Accounts receivable	109,572.9	124,411.7	104,604.5	123,476.9	136,202.6	146,545.6	+33.74
Current financial investments	596.2	628.8	729.9	582.2	594.2	816.9	+37.02
Cash	6,547.2	7,306.3	8,160.1	14,645.9	17,626.1	19,542.0	+198.5
Prepaid expenses	2,907.9	2,784.6	3,168.3	4,621.0	3,735.2	3,877.8	+33.35
Other current assets	5,544.9	6,220.1	5,651.9	5,219.7	5,234.9	5,763.2	+3.93
Current liabilities and provisions	133,814.9	160,964.2	142,854.6	166,879.8	156,629.1	189,257.6	+41.43
Short-term loans from banks	16,290.9	22,223.5	21,592.3	26,102.0	19,557.4	34,250.5	+110.2
Current accounts payable	42,303.9	46,740.9	42,252.4	48,553.3	43,250.5	56,576.5	+33.73
Current provisions	62.2	72.4	71.2	84.2	406.2	1,456.1	+2241
Deferred income and deferred commission income from reinsurers	1,326.2	1,550.9	1,991.8	1,547.7	1,939.9	2,006.4	+51.29
Other current liabilities	73,831.6	90,376.5	76,946.9	90,592.5	91,475.2	94,968.1	+28.63
Equity	146,824.3	152,091.5	169,063.6	219,051.8	287,207.9	292,047.1	+98.91
Registered capital	15,665.3	14,857.5	16,553.9	19,338.9	20,978.6	22,189.8	+41.65
Additional capital	14,737.3	18,809.6	19,869.6	21,355.6	21,441.7	23,212.2	+57.51
Reserve capital	11,466.2	13,867.5	14,182.3	16,114.2	17,315.9	19,833.5	+72.97
Retained earnings	106,574.4	106,032.6	119,805.5	163,398.3	228,652.8	228,541.4	+114.4
Unpaid and retired capital	1,618.9	1,475.5	1,347.7	1,155.2	1,181.2	1,729.8	+6.85
Balance	292,102.1	348,814.1	350,644.3	403,735.9	459,152.7	498,947.9	+70.81
Personnel costs	8,538.4	11,301.5	13,061.0	14,562.2	16,795.8		-
Labour costs	6,941.2	9,149.1	10,611.8	11,825.9	13,453.6	14,621.8	+110.6

Source: Official website of the State Statistics Service of Ukraine (n.d.)

In 2022, the cost of growing crops increased by 30-60% compared to 2021. The cost of winter wheat, winter rapeseed, and grain maize increased the most. The cost of crop production increased due to lower prices for agricultural products (maize from UAH 7,300 to 4,300 (41%); sunflower from UAH 18,500 to 12,000 (35%); wheat from UAH 8,100

to 5,100 (37%)); and an almost twofold increase in the cost of plant protection and fuel (Official website of the..., n.d.).

The correlation between the volume of sales of cereals, legumes, and sunflower seeds by operating small businesses and net profit for 2018-2022 in million UAH at constant prices of 2016 was established (Tables 5-7).

Table 5. Data to establish the correlation between the volume of grain, legumes, and sunflower seeds sold by operating small businesses and net profit

Indicators	2018	2019	2020	2021	2022
Products sold, X_i	174,096.0	181,054.8	210,913.6	293,060.5	224,195.6
Net profit (loss), Y_i	20,604.4	18,321.3	32,230.7	85,053.8	28,832.9

Source: Official website of the State Statistics Service of Ukraine (n.d.)

Table 6. Calculated values of intermediate indicators for establishing a linear dependence function

	x_i^2	x	y	y_i^2	$x_i y_i$
1	23,978,460,560.04	154,849.8	23,772.1	565,112,738.41	3,681,104,930.58
2	30,309,417,216	174,096.0	20,604.4	424,541,299.36	3,587,143,622.4
3	32,780,840,603.04	181,054.8	18,321.3	335,670,033.69	3,317,159,307.24
4	44,484,546,664.96	210,913.6	32,230.7	1,038,818,022.49	6,797,892,967.52
5	85,884,456,660.25	293,060.5	85,053.8	7,234,148,894.44	24,925,909,154.9
Σ	217,437,721,704.29	1,013,974.7	179,982.3	9,598,290,988.39	42,309,209,982.64

Source: developed by the authors of this study using formulas (1-4)

The calculations were performed according to formulas (1-4) and the results were obtained as follows: $a = 0.491982$; $b = -159,437.56$; $y = 0.491982 \times x - 159,437.56$. Thus, with an increase in grain, legumes,

and sunflower seeds sold by small businesses by UAH 1 million, net profit increases by UAH 0.491982 million. Next, the correlation coefficient was calculated (Table 7).

Table 7. Estimated values for determining correlation and determination coefficients

	x	$x_i - \bar{x}$	$(x_i - \bar{x})^2$	y	$y_i - \bar{y}$	$(y_i - \bar{y})^2$	t_x	t_y	$t_x t_y$
1	154,849.8	-47,945.14	2,298,736,449.6196	23,772.1	-12,224.36	149,434,977.4096	-0.99	-0.49	0.4851
2	174,096.0	-28,698.94	823,629,157.1236	20,604.4	-15,392.06	236,915,511.0436	-0.59	-0.62	0.3658
3	181,054.8	-21,740.14	472,633,687,2196	18,321.3	-17,675.16	312,411,281.0256	-0.45	-0.71	0.3195
4	210,913.6	8,118.66	65,912,640.1956	32,230.7	-3,765.76	14,180,948.3776	0.17	-0.15	-0.0255
5	293,060.5	90,265.56	8,147,871,322.1136	85,053.8	49,057.34	2,406,622,607.8756	1.86	1.96	3.6456
Σ			11,808,783,256.272			3,119,565,325.732			4.7905

Source: developed by the authors of this study using formulas (5-8)

The calculations were performed using formulas (5-8), with the following data obtained: $R=0.9581$; $D=0.9179$. Thus, the correlation index value of 0.9581 calculated according to the table data indicates that the factual amount of deviations of the resultant trait is approximately equal to the limit. The coefficient of determination, which characterises the part of the variation

of the resultant trait that depends on the variation of the factor trait, is 0.9179. Thus, in 2017-2022, 91.79% of the variation in net profit was explained by the variation in the level of agricultural products sold by small businesses (grains, legumes, and sunflower seeds). Therefore, the impact of the other factors on the analysed population is insignificant (Fig. 1).

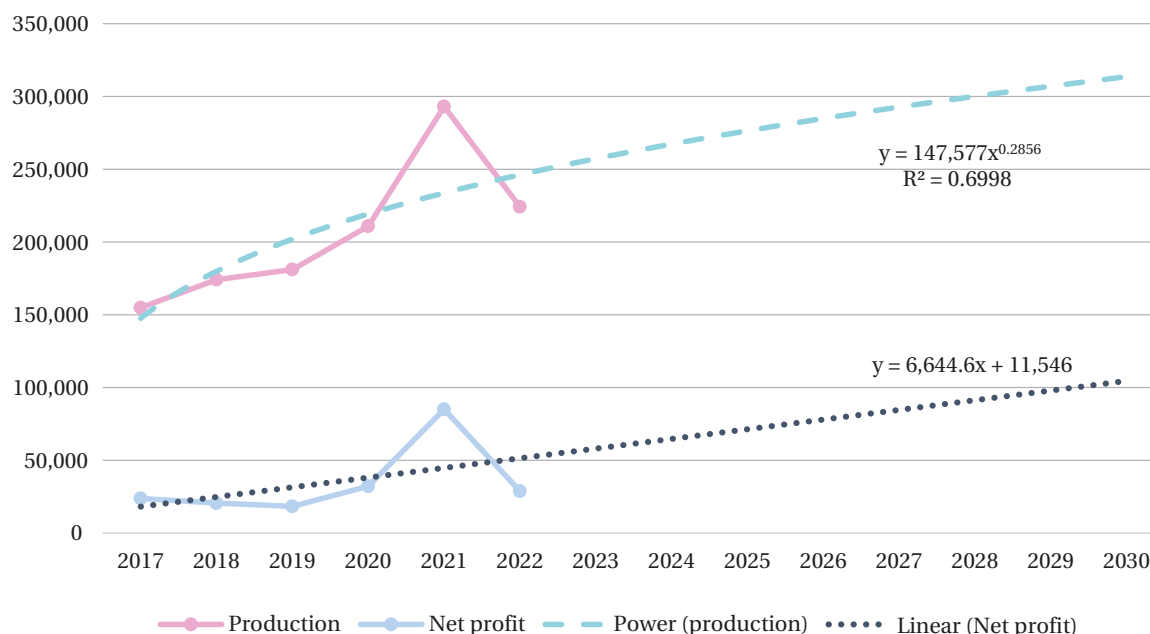


Figure 1. Forecast of changes in sales of grain, legumes, and sunflower seeds by small businesses and net profit in 2030 (UAH million; in constant 2016 prices)

Note: $y=147,577 \times x^{0.2856}$ – a power function for forecasting changes in the production of cereals, legumes, and sunflower seeds sold by small businesses in 2030; $y=6,644.6 \times x + 11,546$ – a linear function for forecasting net profit in 2023; the correlation coefficient is 0.6998

Source: Official website of the State Statistics Service of Ukraine (n.d.)

As of 07.10.2023, the state exported 6.918 mln tonnes of grains and pulses, which is 2.707 mln tonnes less than last year. Since the beginning of July 2023, Ukraine has exported: wheat – 3.474 mln tonnes (in 2022/23 MY – 3.461 mln t); maize – 2.785 mln t (in 2022/23

MY – 5.284 mln t); barley – 0.635 mln t (in 2022/23 MY – 0.844 mln t); rye – 0.7 thous. t (in 2022/23 MY – 4.6 thous. t); flour – 37.3 thous. t (in 2022/23 MY – 25.7 thous. t); wheat flour – 36.2 thous. t (in 2022/23 MY – 23.2 thous. t) (Table 8).

Table 8. Exports of grains, pulses (with their processed products), and flour from Ukraine in 2023/2024 MY (thous. t)

Crops	2022/2023 MY		2023/2024 MY		2023/2024 MY in % to 2022/2023 MY total	2023/2024 MY in % to 2022/2023 MY in October
	Total	including: in October 2022	Total	including: in October 2023		
Cereal and leguminous crops	9,625	932	6,918	249	-28.12	-73.28
Wheat	3,461	420	3,474	137	+0.376	-67.38
Barley	844	70	635	13	-24.76	-81.43
Rye	4.6	0.3	0.7	0.0	-84.78	-100.0
Maize	5,284	440	2,785	98	-47.29	-77.73
Wheat flour	23.2	1.1	36.2	0.8	+56.03	-27.27
Other flour	2.5	0.0	1.1	0.0	-56.00	0.00
In terms of grain	34.3	1.5	49.7	1.1	+44.89	-26.67
Exports total	9,659	934	6,968	250	-27.86	-73.23

Source: Exports of cereals, legumes, and flour from Ukraine (2024)

There are no funds to support the development of business entities in agriculture in the 2023 budget of Ukraine. Therefore, if necessary, the state can provide grants, loans, or compensation to business entities.

For the purpose of small business development, the following grant programmes from international donor organisations are worthy of note.

1. Competition for women entrepreneurs “Created by Women – 2023” (the opportunity to attract UAH 100,000 for the development of their business).

2. Training of employees in the specifics of social entrepreneurship to expand their business.

3. Additional support for entrepreneurs under the Science & Business – GIST Pitch Days programme to develop innovations in the amount of USD 5,000.

4. Compensation from the German Government to MSMEs up to 30% of the cost of investment.

5. Search for business partners in other countries (Rykhlytskyi, 2022).

6. Consultations on a competitive basis from the KSE Graduate Business School on adaptation to war conditions.

7. “International Organisation for Migration – implemented for war-affected micro and small enterprises (up to UAH 4.5-20 thous.).

8. “Comprehensive Programme for Support and Development of Agriculture” is aimed at entrepreneurs in the field of organic production. Entrepreneurs in the Lviv region will receive up to UAH 150 thous.

9. “Own business – 2023” – support for micro and small businesses in the amount of UAH 50-250 thous. (Rykhlytskyi, 2022).

10. In terms of the E-work grant programme, in 2023, it is planned to receive up to UAH 8 million in non-refundable grants to start or develop small businesses under the “Own Business” programme.

11. USAID Competitive Economy – 25 grants are being implemented to support small and medium-sized processing enterprises (up to UAH 75-150 thous.); 30 grants to improve the human resources potential of businesses (UAH 35-150 thous.); small and medium-sized farming enterprises (up to UAH 40 thous.); entrepreneurs in Poltava, Sumy, Kyiv, Chernihiv regions).

The USAID-Agro (US Agency for International Development) Agricultural and Rural Development Programme is designed to last until 2024, with a total cost of \$35 million, and aims to support 3,000 producers from regions of the country affected by the Russian-Ukrainian war. According to the USAID programme, UAH 367 million was provided to small businesses in 2023 to finance support projects: processing of grains, oilseeds, and legumes to improve access to facilities for post-harvesting, processing of grains, oilseeds, and legumes into food, industrial, feed products, biofuels; productivity of processing facilities; quality control at various stages of processing; production of value-added products for domestic consumption and export; expert and technical support; diversified production of bioethanol or solid biofuels from grain processing waste; expansion of the range of production by 25%; and number of jobs; sales by 10% in the first year and production by 20%; ensuring food security (USAID will provide UAH 367 million..., 2023). The USAID-Agro project “Strengthening the capacity of demonstration farms to ensure food security in Ukraine” is also being implemented (Agriculture Resilience Initiative – Ukraine..., n.d.).

The Agriculture Resilience Initiative (AGRI) project is active. The cost is USD 100 million; the purpose is to strengthen the mechanisms for exporting agricultural products. Since the beginning of the war, Corteva Agriscience has allocated more than USD 2 million to the development of small-scale farming (including seed). The educational and grant programme TalentA (practice of doing agricultural business in a crisis) was implemented for 180 farmers (The leadership of Corteva Agriscience..., 2023).

In 2023-2024, the project “Emergency Project for Inclusive Support for the Recovery of Agriculture in Ukraine (ARISE)” is planned to be implemented. Within the framework of this project, Ukrainian agriculture could receive UAH 700 million. The funds are allocated for grant assistance to small entrepreneurs (land users; also, those who specialise in breeding goats, sheep, cows); financial support for the programme “Affordable Loans 5-7-9%” for agricultural production (Ukraine has initiated the attraction..., 2023).

Businesses have received 74,000 loans worth UAH 240.5 billion since the launch of the government's Affordable Loans 5-7-9% programme. Small businesses can receive: a loan for investment purposes to restore production facilities for up to 5 years; a technical assistance loan; a targeted loan; or a state subsidy. In 2022, under this State Programme "Affordable Loans 5-7-9%" The Resolution of the Cabinet of Ministers of Ukraine No. 916 dated 29 July (Resolution of the Cabinet of Ministers of Ukraine No. 916..., 2022) extended loans to businesses for the sowing campaign (at 0% interest) in the amount of UAH 95.5 billion for up to 12 months, with UAH 24.722 billion received under state guarantees (80%).

As of the beginning of October 2023, 213 entrepreneurs received loans totalling UAH 1 billion. Banks have issued 20,600 loans worth UAH 73.5 billion to businesses since the beginning of 2023 alone. 50% of entrepreneurs operate in agriculture (Business received UAH 240.5 billion..., 2023). Since the beginning of 2023, 11.1 thousand business entities in agriculture have received loans in the amount of UAH 56.2 billion. However, only 8.6 thousand businesses were financed under the state programme "Affordable Loans 5-7-9%" for UAH 33.3 billion (Agravery, 2023). In total, 38,892 loan agreements totalling UAH 150.9 billion were concluded under the state programme "Affordable Loans 5-7-9%" during wartime, of which UAH 34.79 billion were loans to agricultural producers (Last week, banks issued €0.9 billion..., 2023).

For small businesses, the total amount of the grant "Development of Small and Medium-Sized Enterprises: Economic Integration of Internally Displaced Persons and Business Recovery" is up to EUR 20 thous. The grant is provided by the German Government. One-time limits are up to EUR 4,500. In May 2022, the first competition was held; in October 2022, the second; and in spring 2023, the third competition was held for different regions of the country (War-affected small businesses..., 2023).

Another platform for helping small businesses is the Keep Going project. It is planned to provide EUR 50 million in impulse financial and information support to small business owners (Strykun, 2022). Business entities registered in the State Agrarian Register can receive non-refundable assistance. The amount of this assistance is UAH 3,100 per hectare of cultivated land. However, the maximum amount of this assistance cannot exceed UAH 372 thous. (Small agricultural producers can..., 2022).

The study of the theoretical and methodological foundations for the survival of small businesses engaged in the production of cereals, legumes, and sunflower seeds in wartime is a widespread problem. Research assessments confirm that small businesses are the most adapted to functioning in a crisis. The issues of development of small businesses and agricultural production are discussed in various interpretations in scientific publications.

The authors of the present study support the position of N. Abu Hasan *et al.* (2022), who proved the importance of introducing digital technologies into the business models of small businesses. Admittedly, this will increase long-term productivity and sustainability, competitiveness, and innovation attractiveness. Furthermore, the implementation of the Agile Business Process Management concept will allow small businesses to implement fundamental

changes in the market environment and respond more effectively and mobilise to market changes, fully unleashing their potential as a business process management mechanism (Bitkowska *et al.*, 2022).

Lack of funding is one of the main issues for business in agriculture. Implementing mechanisms for cooperation and integration of business entities will help them survive. The specific features of the impact of extreme and socio-economic conditions of life on the processes of transformation of business entities from the perspective of V. Kyfyak *et al.* (2022) deserves attention. Researchers also focus on the implementation of government programmes to support business entities in agriculture, specifically, tax and financial sector programmes, and deregulation mechanisms (all business inspections were cancelled, except for price checks for socially important goods; declarative system of business operation; declarative principle of customs operation) (Nehrey & Trofimtseva, 2022).

The comprehensive methodology for assessing the efficiency (economic, technological, social, environmental, intellectual) of business in agriculture, the competitiveness of farms and the innovative development of business entities recommended by M. Parkhomets & L. Uniat (2022) should be supported. The study found that business entities currently use limited marketing potential; the prospects for transforming marketing towards revenue growth are reduced; there are no effective marketing strategies in general. Businesses need to change their marketing identity and the profitability of their operational and all activities. It is vital to cover trends in the turbulence of the business environment and the transformation of marketing under the influence of military operations (Shkoda & Savych, 2022).

The conclusions on the effectiveness, efficiency, and profitability of the development of business entities in agriculture during 2008-2023 were confirmed by scientists D. Krysanov & O. Varchenko (2023). The processes of investing in the development of business entities and agricultural production are characterised by variable dynamics. The agrarian crises of 2008-2023, which resulted in higher selling prices, did not affect investment in the development of business entities. O. Shust's (2023) research substantiates the decrease in the number of small businesses in agriculture by 8% (7% have completely stopped their production in crop production, and 1% in livestock production). In 2022-2023, small entrepreneurs in agriculture reported a sharp decline in income from crop production (70%) and livestock production (60%). The study found that small businesses in the areas affected by the hostilities had virtually no access to finance. Due to the reassessment of current credit risks, lending by banks has effectively ceased. It was established that USD 73 billion are the needs of small and medium-sized enterprises alone (Vynogradnya & Burdonos, 2023).

The study reveals the position on the essence of the system of state financial support (the use of various forms, types, means, methods, tools to create a favourable environment for increasing their competitiveness) for small and medium-sized businesses (Vyhovska *et al.*, 2023). The system of monitoring and state financial control over the use of state aid granted to business entities is imperfect. Some legislative acts on the forms and types of support for

business entities are contradictory. Targeted support for enterprises is not publicly available. A simplified taxation system for small businesses ensures the stability of their development and facilitates the implementation of agribusiness (Feduniak *et al.*, 2023).

It is also worth agreeing with the results of developing the structure of technological, organisational, environmental factors of the effective activity of small businesses based on supply chain technology as intermediaries and considering the positions of the theory of innovation diffusion and technologies for organising the market environment (Abdul Rahman & Abdul Rahim, 2023). The capital equipment of 100 ha of agricultural land has a positive impact on the profitability per 100 ha of agricultural land in the context of business entities of different specialisations. The models built by Y. Klius *et al.* (2023), the specialisation models can be used to form the structure of marketable products. The study found that the expansion of the area of land plots under lease by 2025 will lead to an increase in their total volume by 0.245 thous. ha. The purchase (sale) of additional land plots by business entities leads to an increase in the value of land plots by UAH 0.006 thous., and the growth of the volume of land exchanged leads to an increase in their value by UAH 0.377 thous. (Kurbatska *et al.*, 2023). The need to develop a comprehensive approach to changing the processes of efficient use of land and resource potential and production in the post-war period of development of agriculture and the agro-industrial complex was agreed.

During the study, the specific features of the extensive and inefficient way of rapeseed production development were revealed. The economic efficiency of rapeseed production and processing can be improved by increasing the yield and fat content of seeds; using the best seed hybrids adapted to concrete environmental and growing conditions; applying innovative technologies for growing and harvesting rapeseed; strict adherence to the recommended requirements for the control of rapeseed diseases, pests, and weeds (Parkhomets *et al.*, 2023). In 2023-2035, Ukraine can provide a harvested area of 2,250-2,810 thous. ha of rapeseed; rapeseed yield – 3.2-4 t/ha; seed sales – 5,100-9,140 thous. tonnes, or 1.9-3.4 times more than the current level. Yield, oil content of the seeds, and the capacity of the processing plant have the greatest impact on the economic efficiency of rapeseed production and processing. Innovative technologies for rapeseed production and harvesting should be introduced to develop small farmers.

Studies of the specific features of the market environment of business entities have revealed the need for priority investment incentives to increase the production of organic food and the development of primary and advanced processing of agricultural raw materials; they have also focused on the technical and technological modernisation of the production base and environmentally oriented nature management (Penkova & Kharenko, 2023). It was established that farmers have adapted best to functioning in wartime conditions and have retained their positions in the market environment. The authors of the present study support the need to attract investment in the development of small businesses in agriculture and support farmers with a system of credit and innovation cooperation (Skydan *et al.*, 2023). The volume and possibilities of

self-financing of small businesses depend on the level of income of the enterprise and the incentives provided by the state in terms of tax exemption for the income of the enterprise reinvested in innovative development. It is necessary to use a cooperative financing model for farms and private households, which allows for cost optimisation and innovation (Sus *et al.*, 2023).

The study proves that an adaptive approach to functioning under martial law is associated with the development of strategies for reflecting the impact of the crisis by a small business entity (Kravchenko *et al.*, 2023). In 2022-2023, business entities faced the following operational problems: disruptions in logistics, fuel and lubricants supply, and energy security; untimely agricultural work; bombing of grain fields; unsystematic fertiliser supplies, etc. (Pryshliak *et al.*, 2023).

The parameters of the economic crisis impose new requirements for the development of an effective system for the survival of small businesses and the adaptation of their economic mechanism to extreme conditions. Small entrepreneurs in agriculture were able to adapt to the crisis more quickly. The following obstacles to the development of small businesses in agriculture are as follows: the focus of programmes on supporting large producers; low level of information and advisory support; risky business start-ups; and low liquidity of production.

► Conclusions

An analytical assessment of the economic activities and specific features of the development of small businesses engaged in the production of cereals, legumes, and sunflower in wartime has confirmed their special socio-psychological and economic significance. Compared to large business entities, small businesses suffered the least losses from the hostilities. It was substantiated that the problems of rural employment can be solved through the development of small agricultural and non-agricultural entrepreneurship.

It was found that due to the compactness of production and mobile management system, small businesses are most adapted to functioning in the market environment in wartime. It was substantiated that an increase in the volume of production of cereals, legumes, and sunflower by small businesses by UAH 1 million leads to an increase in net profit by UAH 0.491982 million. The following factors have a negative impact on the development of small businesses engaged in the production of cereals, legumes, and sunflower seeds: complicated logistics; insufficient attraction of investments and financial and credit resources; lack of a holistic policy of integrated rural development; limited opportunities for the application of advanced technologies; low level of technical and technological support; weak motivation for innovation; insufficient awareness of producers about the benefits of establishing family farms.

Further research should clarify the strategic vectors of development of small businesses in the production of cereals, legumes, and sunflower in accelerating the post-war development of the country's economic system. The study also focused on the need to develop regional programmes for the development of small businesses and their cooperative associations of various specialisations for the period

up to 2030 and state support for starting their business, spreading financial and socio-economic literacy, protecting property rights, employment of rural producers, and increasing the export potential of businesses producing cereals, legumes, and sunflower.

► Acknowledgements

None.

► Conflict of Interest

The authors of this study declare no conflict of interest.

► References

- [1] Abdul Rahman, N.A., & Abdul Rahim, Z. (2023). Determinants Influencing supply chain technology adoption towards the performance of micro, small, and medium enterprises in Malaysia. In *Kedah international conference on social science and humanities: Materials of the 2nd international conference on business, finance, management and economics (BIZFAME)* (pp. 25-30). Malaysia: UiTM Kedah. doi: 10.21834/e-bpj.v8iSI15.5093.
- [2] Abu Hasan, N., Abd Rahim, M., Ahmad, S.H., & Meliza, M. (2022). Digitization of business for small and medium-sized enterprises (SMEs). *Environment-Behaviour Proceedings Journal*, 7(19), 11-16. doi: 10.21834/ebpj.v7i19.3270.
- [3] Agriculture Resilience Initiative – Ukraine (AGRI – Ukraine). (n.d.). Retrieved from <https://www.usaid.gov/ukraine/agriculture-resilience-initiative-agri-ukraine>.
- [4] Bitkowska, A., Dziembek, D., & Gzik, T. (2022). Towards cloud agile business process management. *Communications of the IBIMA*, 2022(2022), article number 821632. doi: 10.5171/2022.821632.
- [5] Business received uah 240.5 billion in affordable loans since the start of the “Affordable loans 5-7-9%” program. (2023). Retrieved from <https://www.me.gov.ua/News/Detail?lang=uk-UA&id=8edfc081-cdc9-421c-8173-e74b9cc3c58b&title=BiznesOtrimav240-5>.
- [6] Exports of cereals, legumes, and flour from Ukraine. (2024). Retrieved from <https://minagro.gov.ua/investoram/monitoring-stanu-apk/eksport-z-ukrayini-zernovih-zernobobovih-ta-boroshna>.
- [7] Feduniak, I., Habor, W., & Litvinov, V. (2023). Components of the financial and legal mechanism for ensuring the development of small enterprises in the agrarian sphere of economy. *Efficient Economy*, 5. doi: 10.32702/2307-2105.2023.5.67.
- [8] Filling out the simplified financial reporting of a small business entity (forms No. 1-MS, No. 2-MS). (2019). Retrieved from <https://interbuh.com.ua/ua/documents/oneanalytics/15035/400>.
- [9] In Ukraine, 41.7 million tons of cereals and oilseeds were harvested. (2023). Retrieved from https://www.ukrinform.ua/rubric-economy/3767653-v-ukraini-namolotili-417-miljona-tonn-zernovih-ta-olijnih-kultur.html#google_vignette.
- [10] Kaliuha, Y., & Hryshchuk, H. (2023). Internal control of production activity in small enterprises: Domestic and international practice. *University Economic Bulletin*, 57, 51-57. doi: 10.31470/2306-546X-2023-57-51-57.
- [11] Klius, Y., Vasyurenko, L., Manukhina, M., Melnik, M., Tatsii, I., & Spivak, S. (2023). Adaptive modeling of the size of the resource base as a measure of activity efficiency management of agricultural enterprises. *Financial and Credit Activity: Problems of Theory and Practice*, 2(49), 219-227. doi: 10.55643/fcaptop.2.49.2023.4027.
- [12] Kravchenko, S., Malik, M., Shpykuliak, O., & Malik, L. (2023). Supporting the development of family farming in wartime conditions. In *Scientific directions of research in educational activity: Materials of the VI international scientific and practical conference* (pp. 54-56). Osaka. doi: 10.46299/ISG.2023.1.6.
- [13] Krysanov, D., & Varchenko, O. (2023). Variability of primary production of the agricultural sector of Ukraine: Investment priorities and future forecasts. *Bulletin of Agricultural Science*, 10(847), 76-86. doi: 10.31073/agrovisnyk202310-11.
- [14] Kurbatska, L., Sitkovska, A., Tesliuk, Yu., Lukianova, V., & Yavorska, T. (2023). Factors influencing the effective use of land and resource potential in Ukrainian agricultural businesses. *Scientific Horizons*, 26(4), 119-135. doi: 10.48077/scihor3.2023.119.
- [15] Kusnandar, K., Setyowati, N., & Wida Riptanti, E. (2023). Creating an innovative culture in agribusiness of micro, small and medium-sized enterprises. *Agricultural and Resource Economics: International Scientific E-Journal*, 9(2), 205-222. doi: 10.51599/are.2023.09.02.09.
- [16] Kyfyak, V., Verbivska, L., Alioshkina, L., Galunets, N., Kucher, L., & Skrypnyk, S. (2022). The influence of the social and economic situation on agribusiness. *WSEAS Transactions on Environment and Development*, 18, 1021-1035. doi: 10.37394/232015.2022.18.98.
- [17] Last week, banks issued €0.9 billion in available loans, according to the Ministry of Finance. (2023). Retrieved from <https://www.ukrinform.ua/rubric-economy/3771740-banki-minulogo-tizna-vidali-09-milarda-dostupnih-kreditiv-minfn.html>.
- [18] Law of Ukraine No. 2524-IX “On Official Statistics”. (2022, August). Retrieved from <https://zakon.rada.gov.ua/laws/show/2524-20#Text>.
- [19] Law of Ukraine No. 996-XIV “On Accounting and Financial Reporting in Ukraine”. (1999, July). Retrieved from <https://zakon.rada.gov.ua/laws/show/996-14#Text>.
- [20] Litvak, O., & Litvak, S. (2023). Implementation of the circular economy model in the agricultural sector of Ukraine. *Baltic Journal of Economic Studies*, 9(2), 146-156. doi: 10.30525/2256-0742/2023-9-2-146-156.
- [21] Lopes, J.M., & Gomes, S. (2022). Innovative and sustainable business strategies: The case of portuguese SMEs. *IBIMA Business Review*, 2022(2022), article number 714613. doi: 10.5171/2022.714613.

- [22] Mohamad Fauzi, S.N., Ghazali, P.L., Rohim, R.A., & Abdul Razak, R. (2023). Weighting risk factors for start-up businesses in small and medium enterprises: A qualitative approach and ATLAS ti procedure. In *Kedah international conference on social science and humanities: Materials of the 2nd international conference on business, finance, management and economics (BIZFAME)* (pp. 61-70). Malaysia: UiTM Kedah. doi: 10.21834/e-bpj.v8iSI15.5072.
- [23] Nehrey, M., & Trofimtseva, O. (2022). Analysis of the agriculture sector of Ukraine during the war. *Bulletin of V.N. Karazin Kharkiv National University Economic Series*, 102, 49-56. doi: 10.26565/2311-2379-2022-102-06.
- [24] Official web-site of the State Statistics Service of Ukraine. (n.d.). Retrieved from <http://www.ukrstat.gov.ua>.
- [25] Parkhomets, M., & Uniiat, L. (2022). Methodological and methodical principles efficiency research of innovative development of agricultural business enterprises in conditions of competition. *Innovative Economy*, 1, 23-30. doi: 10.37332/2309-1533.2022.1.3.
- [26] Parkhomets, M., Uniiat, L., Chorny, R., Chorna, N., & Hradovyi, V. (2023). Efficiency of production and processing of rapeseed for biodiesel in Ukraine. *Agricultural and Resource Economics: International Scientific E-Journal*, 9(2), 245-275. doi: 10.51599/are.2023.09.02.11.
- [27] Penkova, O., & Kharenko, A. (2023). Marketing analysis of the functioning environment of agrarian enterprises. *Ukrainian Black Sea Region Agrarian Science*, 27(2), 28-40. doi: 10.56407/bs.agrarian/2.2023.28.
- [28] Pryshliak, N., Dankevych, V., Tokarchuk, D., & Shpykuliak, O. (2023). The sowing and harvesting campaign in Ukraine in the context of hostilities: Challenges to global energy and food security. *Polityka Energetyczna – Energy Policy Journal*, 26(1), 145-168. doi: 10.33223/epj/161794.
- [29] Resolution of the Cabinet of Ministers of Ukraine No. 916 “On Amending the Resolutions of the Cabinet of Ministers of Ukraine dated January 24, 2020, No. 28, and July 14, 2021, No. 723”. (2022, July). Retrieved from <https://zakon.rada.gov.ua/laws/show/916-2022-%D0%BF#Text>.
- [30] Rykhliitskyi, V. (2022). *Business grants: How and where to obtain non-repayable financial assistance for entrepreneurship*. Retrieved from <https://www.epravda.com.ua/publications/2022/08/17/690436/>.
- [31] Sahachko, Yu., Smihunova, O., & Podolska, O. (2023). Prospects for the formation of investment support for the technological growth of the agricultural sector of the Ukrainian economy in the post-war period. *Ukrainian Black Sea Region Agrarian Science*, 27(3), 62-70. doi: 10.56407/bs.agrarian/3.2023.62.
- [32] Shkoda, T., & Savych, O. (2022). Transformation of marketing in wartime and postwar. *Baltic Journal of Economic Studies*, 8(5), 209-216. doi: 10.30525/2256-0742/2022-8-5-209-216.
- [33] Shust, O. (2023). Organizational and economic aspects of the functioning of subjects of the agrarian sector of Ukraine in the conditions of the introductions of martial law. *Innovative Economy*, 2, 5-12. doi: 10.37332/2309-1533.2023.2.1.
- [34] Skydan, O., Dankevych, V., Garrett, R.D., & Nimko, O. (2023). The state of the agricultural sector in Ukraine during wartime: The case of farmers. *Scientific Horizons*, 26(6), 134-145. <https://doi.org/10.48077/scihor6.2023.134>.
- [35] Small agricultural producers can apply for assistance from the EU – here's how to do it. (2022). Retrieved from <https://www.ukrinform.ua/rubric-economy/3564881-mali-agrovirobniki-mozut-podat-zaavku-na-dopomogu-vid-es-ak-ce-zrobiti.html>.
- [36] Strykun H. (2022). *Keep Going – a platform to support micro and small businesses*. Retrieved from <https://platforma-msb.org/keep-going-platforma-dopomogy-mikro-ta-malomu-biznesu/>.
- [37] Sus, T., Suduk, N., Yemets, O., Movchun, S., & Tsiupa, O. (2023). Innovative development of the agricultural sector: Financing models and assessment of the impact of financing at the regional level. *Financial and Credit Activity Problems of Theory and Practice*, 2(49), 181-193. doi: 10.55643/fcaptop.2.49.2023.4021.
- [38] The leadership of Corteva Agriscience briefed the Minister of Agrarian Policy of Ukraine on investment directions. (2023). Retrieved from <https://www.agravery.com/uk/posts/show/kerivnictvo-corteva-agriscience-rozpovilo-pro-napramki-investicij-ministru-agrarnoi-politiki-ukraini>.
- [39] The Ministry of Agrarian Policy and Food increased this year's forecast for grain and oilseed crops to 76.7 million tons. (2023). Retrieved from <https://www.ukrinform.ua/rubric-economy/3746704-minagropolitiki-zbilsilo-prognoz-cogoricnogo-vrozau-zernovih-ta-olijnih-do-767-miljona-tonn.html>.
- [40] Ukraine has initiated the attraction of international assistance in the field of agriculture from the IFAD. (2023). Retrieved from <https://www.agravery.com/uk/posts/show/ukraina-iniciuvala-zalucenna-miznarodnoi-dopomogi-v-galuz-silskogo-gospodarstva-vid-mbr>.
- [41] USAID will provide 367 million UAH to support the processing of Ukrainian cereals, oilseeds, and legumes. (2023). Retrieved from <https://ports.ua/usaaid-nadast-na-pidtrimku-pererobki-ukra%D1%97nskih-zernovih-olijnih-ta-bobovih-kultur-367-mln-grn/>.
- [42] Vyhovska, N., Vyhovskiy, V., & Tsysar, O. (2023). System of state financial support of small and medium-sized business entities. *Efficient Economy*, 11. doi: 10.32702/2307-2105.2023.11.25.
- [43] Vynogradnya, V., & Burdonos, L. (2023). State support of entrepreneurial activity in modern conditions. *University Economic Bulletin*, 57, 109-113. doi: 10.31470/2306-546X-2023-57-109-113.
- [44] War-affected small businesses will receive grants for recovery from the German Government. (2023). Retrieved from <https://www.kmu.gov.ua/news/postrazhdalyi-vid-viiny-malyi-biznes-otrymaie-hranty-na-vidnovlennia-vid-nimetskoho-uridu>.

Розвиток суб'єктів малого підприємництва з виробництва зернових, бобових і насіння соняшнику в умовах воєнного часу

Микола Йосипович Малік

Доктор економічних наук, професор
Національний науковий центр «Інститут аграрної економіки»
03127, вул. Героїв Оборони, 10, м. Київ, Україна
<https://orcid.org/0000-0001-9198-4460>

Світлана Анатоліївна Кравченко

Доктор економічних наук, професор
Національний науковий центр «Інститут аграрної економіки»
03127, вул. Героїв Оборони, 10, м. Київ, Україна
<https://orcid.org/0000-0001-5541-4495>

Олександр Григорович Шпикуляк

Доктор економічних наук, професор
Національний науковий центр «Інститут аграрної економіки»
03127, вул. Героїв Оборони, 10, м. Київ, Україна
<https://orcid.org/0000-0001-5257-5517>

Генріх Олександрович Гудзь

Кандидат економічних наук, асистент
Київський національний університет імені Тараса Шевченка
01601, вул. Володимирська, 64/13, м. Київ, Україна
<https://orcid.org/0000-0003-4931-3350>

► **Анотація.** Суб'єкти малого підприємництва з виробництва зернових, бобових і насіння соняшнику забезпечують потенціал продовольчої безпеки країни та зберігання навколишнього середовища. Мета статті було обґрунтувати соціальні, економічні та концептуальні засади діяльності суб'єктів малого підприємництва з виробництва зернових, бобових і насіння соняшнику в сучасних умовах. За методологічну основу дослідження слугували положення інституціональної економічної теорії та функціонального аналізу. Використано аналіз, графічний, абстрактно-логічні методи та підходи узагальнення результатів. Визначено мотиваційну спрямованість функціонування суб'єктів малого підприємництва з виробництва зернових, бобових і насіння соняшнику та їх місце у процесі виробництва та споживання. В процесі дослідження встановлено, що у 2023 році досягнуто рекордної врожайності зернових культур – 51,8 центнерів на гектар, що обумовлено сприятливими погодними умовами. Обґрунтовано, що витрати на виробництво сільськогосподарських культур збільшилися за рахунок зниження цін на продукцію виробництва (на кукурудзу на -41 %; соняшник на -35 %; пшеницю на -37 %) та зростання вартості майже вдвічі комплексу захисту рослин та палива. Доведено, що в період 2017-2022 рр. 91,79 % варіації чистого прибутку пояснюється варіацією рівня реалізованої суб'єктами малого підприємництва продукції зернових, бобових культур і насіння соняшнику. З'ясовано, що порушення системи збуту продукції суб'єктів малого підприємництва з виробництва зернових, бобових і насіння соняшнику, низький рівень закупівельних цін та значне підвищення цін в зв'язку з воєнними діями на матеріально-технічні джерела виживання та добрива робить виробництво малоефективним. Одним з пріоритетних напрямів регіональної політики залишається розвиток суб'єктів малого підприємництва та сімейного фермерства. Інформаційно-аналітичний матеріал можливо враховувати при розробленні регіональних програм розвитку суб'єктів аграрного підприємництва

► **Ключові слова:** суб'єкт підприємницької діяльності; адаптація до умов воєнного стану; малі підприємницькі структури; сімейне фермерське господарство; сільськогосподарський кооператив; приватні підприємства