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FEATURES OF FORMATION AND USE OF PRODUCTION RESOURCES BY SMALL FARMS IN UKRAINE

Olga Myronivna Varchenko*, Kateryna Vitalyivna Tkachenko, Valentyna Anatolyivna Byba, Nadiia Ivanivna Svynous

Bila Tserkva National Agrarian University

It is proved that the effective development of small farms is ensured by the level of their resource supply and the balance of production resources, the efficiency of which we have been carried out on the basis of the calculation of allocative and technical efficiency. According to the obtained equation of production function, we conclude that the most elastic factor is the cost of seeds, fertilizers, feed and other material costs. An increase of this resource by 1% will lead to an increase in the result by 0.395%. The smallest value of the coefficient of elasticity was obtained from such production resource as arable land. The obtained model shows that there is a decreasing effect on the scale, since the sum of the regression coefficients is less than 1 (equal to 0.962), which means that if the resources increase in some proportion, then the volumes of revenue increase in a smaller proportion. It is substantiated that allocative inefficiency is caused not by the excessive use of resources in small farms, but by the higher prices for them and the underestimated agricultural output.

Keywords: small farms; technical and allocative efficiency; production resources

Introduction

The development of farms in Ukraine is characterized by the positive dynamics of resource supply and, accordingly, the volume of agricultural production. In particular, the volume of crop production in the period 2005–2017 increased 7 times, livestock – almost 6 times. Among the restraining factors for the development of farms are the following: low efficiency of agricultural production; psychological barriers to entrepreneurship, lack of appropriate social status of "family farm"; insignificant investments; underdevelopment of formal cooperative ties; insufficient level of special education; low efficiency and inconsistency of state support; incompleteness of land reform.

In addition, despite the positive trend of improving agricultural production efficiency in farms, the opportunities for profitable production of basic agricultural products in small farms have not been fully realized. That is why, in the current environment, there is a need to take into account the size of farms and to introduce a differentiated approach to the formation of a production program that will facilitate the mobilization of internal resources for their development.

Material and methods

For estimation of allocative and technical efficiency we defined the following algorithm: a reliable statistical array is formed based on the data of the State Statistics Service of Ukraine, which is used for construction of production function; an analysis of the production function is carried out, which will allow to evaluate the interrelation between the output of the product and the production resources, as well as being the basis for the estimation of the elasticity of output over the resources. Allocative efficiency is calculated, namely the assessment of compliance of management decisions regarding the use of a certain amount of resources in the production process. It should be noted that the allocation of allocative efficiency is based on the formed experience of the enterprise management system and the method of value of marginal product (VMP – Value of Marginal Product); farm technical performance is evaluated using a non–parametric Data Envelopment Analysis (DEA) method for a convex model, with constant and variable scale effects, radial distance, focusing on maximum output and minimum resource cost. Based on technical efficiency calculations changes in the value of technical efficiency are compared to the previous period. To this end, it is advisable to apply the Malmquist Index.

To build the production function, we used statistics from small farms for 2017 that had arable land up to 500 ha. The sample includes indicators of 12,074 small farms.

Therefore, Y is the result of the sales of agricultural products in thousand UAH, and the variables: X1 – arable land, ha; X2 – number of employees, persons; X3– the cost of petroleum products, thousand UAH; X4 – the cost of spare parts, thousand UAH; X5 – costs for the payment of works and services to third parties, thousand UAH; X6 – costs for seeds, fertilizers, feed and other material costs, thousand UAH.

To determine the influence of the selected factors on the resultant variable, we constructed a correlation matrix, and in order to establish the quantitative influence of the factors on the resultant characteristic, we constructed a nonlinear equation – production function.

Results and discussion

The study of organizational and economic conditions of development of farms in Ukraine made it possible to systematize the following problems, namely: the development of farms occurs in conditions of low economic efficiency of agricultural production; the presence of psychological barriers, lack of proper social status are often the cause of low entrepreneurial activity; because of small investments it is not possible to significantly improve economic results; the underdevelopment of cooperatives impedes the rational utilization of the potential of smallholder farms and rural areas; farmers' lack of educational attainment hinders economic transformation in the agricultural sector; low or lack of state support, imperfection of state regulation impede the dynamic development of farms (Byba et al., 2018; Demchak et al., 2018; Nesterenko, 2015).

It is known that according to the Land Code of Ukraine in 1990, a farmer could obtain from the state ownership and lifetime ownership of up to 50 ha. In fact, during 1990–1992, 0.54 million hectares of land were transferred

to farmers. Over the last five years, land use has increased by 12.1% and amounted to 4.4 million hectares in 2017, or 12% of the total agricultural land area (Byba et al., 2018). In the structure of land use, the share of leased agricultural land in 2017 in case of large and medium–sized farms it was 98% and in case of small farms it was 74.4%.

In this regard, there is a need for a more in–depth study of small farms by the concentration of agricultural land (Table 1). It is established that, depending on the area of land use, the largest share is occupied by farms that use more than 100 hectares of agricultural land.

The results of the grouping show that with the increase in the level of concentration of land resources in farms, the level of profitability of agricultural production increases. The area of agricultural land used by small farms is a determining factor that influences the choice of the direction of production activity. Thus, business entities with an area of land use up to 5 hectares specialize mainly in the production of livestock products. As the area of agricultural land increases in the land use of small farms, they reorient themselves to the production of crop products, which is adequately reflected in the increase in the share of agricultural production in the income structure of the entity.

Therefore, during 2000–2017, farmers did not become the leading producers of basic agricultural products for objective and subjective reasons. At the same time, there is a significant increase in the volume of gross agricultural products – almost 7 times, which led to an increase in the share of farms in the structure of total agricultural production. Its rapid increase is explained by the increase in crop production, which occupies more than 90% of the gross production of farms. This tendency can be explained by the fact that an agricultural enterprise specializing in the production of crop production requires 3.0–3.5 times less fixed assets for its development than an agricultural enterprise producing livestock products (Gnatishin et al., 2016; Golubev, 2017).

At the same time, the unpretentiousness of work in agriculture causes a negative tendency and decrease the number of workers in farms. Since 2005, the number of workers decreased by almost 40%, in 2017 amounted to 96.7 thousand people. This tendency in the development of farms testifies the intensification of the processes of intensification of the production process of agricultural products, which ultimately leads to a reduction in the complexity. Considering the employment features of small farms, where almost 70% of them employ up to 1 person who is a member of the aforementioned agricultural business (Table 2), this leads to the assumption that this group of agricultural producers can be presented as family farms.

According to the Law of Ukraine "On Stimulating the Creation and Activity of Family Farms" it is possible to create a family farm without the status of a legal entity on the basis of an agreement/declaration establishing such a farm (Law of Ukraine, 2016). Family farms can create families that cultivate up to 20 hectares of land without hiring workers. At the same time they are engaged only in growing agricultural products, fattening animals, preparing such goods for sale.

In order to substantiate the directions of effective development of farms through the mobilization of internal resources, it is advisable to determine on the basis of the level of their resources and the balance of used resources (land, labor, fixed and circulating assets), which are combined by a set of objectively existing economic relations based on modern technologies.

Table 1 Grouping of small farms by concentration level of farmland, 2017

Groups for area agricultural whatever (ha)	Fraction (%)	Specific weight in dredging (%)	Profitability, crop production (%)	Profitability, animals production (%)	Fraction products animals nity (%)	Product rural farms	
						% to everything	profitability (%)
by 5	12.1	0.5	14.6	-0.7	67.6	1.3	3.8
5.1–10	9.1	0.9	26.9	15.1	12.4	0.5	25.3
10.1–25	17.6	3.8	38.7	6.5	18.8	2.6	31.3
25.1–50	30.5	14.7	33.8	11.2	3.2	7.1	32.9
50.1–100	12.3	10.5	41.2	9.6	8.0	8.4	38.0
100.1–500	15.0	40.7	47.7	12.7	1.8	44.6	46.9
more 500	3.5	28.9	48.9	27.0	2.7	35.6	48.3
Total	100.0	100.0	46.0	11.0	4.1	100.0	44.2

Source: calculated according to the State Statistics Service of Ukraine

Table 2 Grouping of small farms by number of employees per farm in 2017, persons

Groups by number of employees (persons)	Share of enterprises (%)	Number of employees (persons)	Including members of the farm	Hired workers	Of these are permanent	Number of employees per enterprise (persons)
by 1	68.1	22,212	19,878	2,109	1,516	1
2	11.9	7,801	4,092	3,702	2,520	2
3	6.0	5,917	2,616	3,308	2,507	3
4	4.1	5,398	2,141	3,270	2,494	4
5	2.5	4,085	1,312	2,790	2,172	5
10	5.2	12,464	3,094	9,445	7,403	7
More 10	2.1	12,081	1,142	11,059	8,700	18
Total	100.0	69,957	34,275	35,682	27,311	2

Source: calculated according to the State Statistics Service of Ukraine

It should be noted that in farms, the scarcity of production resources is not the only factor that determines the scale of production. Given that, all resources can be used in different combinations in the process of production, there is a set of aspects that directly or indirectly affect the scale of the entire production system and its individual subsystems.

In order to evaluate the efficiency of the use of certain types of production resources, we have used the neoclassical approach within the concept proposed by Farrell (Farrell, 1957). The concept of allocative and technical efficiency is accordingly highlighted.

Allocative efficiency analysis indicates that the use of a particular resource is excessive, optimal or insufficient at current prices in the resource and end product markets.

Assessment of technical efficiency involves the comparison of output witch is the maximum possible for a given amount of resources, ie. farms are compared by the level of use of their resources. As a reference farm, we define a set of efficient farms that provide the maximum output per unit of resource.

To build the production function, we used data on the development of small farms for 2017, namely farms with arable land up to 500 ha. It should be emphasized that the value of this indicator is used in the presence of state support of farms. Thus, out of the total number of working farms, 28,664 units have cultivated land up to 500 ha, which is almost 84% of the total number of farms in Ukraine. It is this group of farms that has a low level of technical and technological support, insufficient level of opportunities to attract financial resources and investments in economic activities.

Therefore, the resultant indicator in this model is Y – revenue from the sale of agricultural products in thousand UAH.

Variable factors are: X1 – arable land, ha; X2 – number of employees, persons; X3 – the cost of petroleum products, thousand UAH; X4 – the cost of spare parts, thousand UAH; X5 – costs for payment of works and services of third parties, thousand UAH; X6 – costs for seeds, fertilizers, feed and other material costs, thousand UAH.

The average statistical values of the value of production resources in the group of small farms are given in table. 3.

The calculated correlation coefficients between the factors of production and the resulting variables are shown in the correlation matrix of Table. 4.

The calculations in table 4 indicates that there is a strong correlation between revenue and expenditure on seeds, fertilizers, feed and other material resources; palpable correlation between the revenue and the number of employees, the cost of oil products, the payment of work and services of third parties; moderate relationship – between revenue and arable land, spare parts costs.

Construction of a production function is two-stage. In the first stage, we perform linearization of the production function and reduce it to a linear form; in the second, we construct a multiple linear regression model and estimate the model parameters using the least squares method.

The calculated coefficient of determination $R2$ characterizes the fraction of variation of the dependent variable that is caused by the regression or variability of the variables used in the model. The obtained value of the coefficient of determination $R2 = 0.8590$ is high, which indicates the existence of a close functional dependence of the index of revenue on the amount of resources used in the production process.

The value of $F = 2{,}979$ is greater than the table value of the Fisher criterion $F\ (0.05; 6; 5{,}941) = 2.14$, ie. the regression equation is significant. Therefore, the studied dependent variable Y is described by the variables included in the regression model. On the basis of the received data it is possible to deduce production function:

$$\ln Y = \ln(2.268) + 0.0826 \ln X_1 + 0.112 \ln X_{2+} 0.122 \ln X_3 + 0.091 \ln X_4 + 0.1598 \ln X_5 + 0.395 \ln X_6 \quad (1)$$

Table 3 Average values of production resources in smallfarms (per 1 farm)

Type of production factor (resources)		Medium value	Standard deviation
Y	revenue (thousand UAH)	1,126.25	2,174.60
X_1	area of arable land (ha)	55.73	86.88
X_2	number of employees (persons)	2.40	1.34
X_3	cost of petroleum products (thousand UAH)	67.23	109.51
X_4	spare parts costs (thousand UAH)	34.91	64.68
X_5	costs for the payment of works and services of third parties (thousand UAH)	114.61	143.97
X_6	expenses for seeds, fertilizers, feed and other material costs, thousand UAH	245.11	341.73

Source: calculated by the authors

Table 4 Coefficients of correlation between factors and productive variable

	Y	X_1	X_2	X_3	X_4	X_5	X_6
Y	1						
X_1	0.437539	1					
X_2	0.592635	0.308906	1				
X_3	0.533082	0.643054	0.370072	1			
X_4	0.409221	0.416177	0.281413	0.556712	1		
X_5	0.505204	0.156845	0.341549	0.360362	0.200235	1	
X_6	0.83579	0.232272	0.56786	0.315313	0.246349	0.248967	1

Source: calculated by the authors

Based on the model obtained, we can deduce the production function by exhibiting:

$$Y = 9.664\, X_1^{0.0826}\, X_2^{0.112}\, X_3^{0.122}\, X_4^{0.091}\, X_5^{0.1598}\, X_6^{0.395} \quad (2)$$

Based on the obtained equations of production function, we can conclude that the most elastic factor X6 – the cost of seeds, fertilizers, feed and other material resources. An increase of this resource by 1% will give an increase of the effective sign by 0.395%. The smallest value of the coefficient of elasticity was obtained from such production resource as arable land.

In our model, a downward effect on scale is observed, since the sum of the regression coefficients is less than 1 (0.962). This means that if resources increase in some proportion, then *Y* increases in smaller proportion.

Consider the results of calculating the allocation of resource efficiency in smallholder farms. The function of marginal product – marginal productivity of the resource is used to evaluate the allocative efficiency of the use of production resources.

The results of the analysis of the value of the marginal product for each type of production resources at constant (average) values of others are given in table 5. The value of the marginal product is calculated by substituting the value of the value of a particular type of resource into the function of the marginal product.

It should be noted that two types of production factors out of six are measured in physical units: land – in hectares and number of employees – persons. The efficiency of these resources is determined by comparing the marginal product with the value of the costs involved in bringing them into the production process.

A graphical representation of the change in the size of the marginal product of the first production factor (arable land) depending on the change in its size is shown in figure 1. The data of this figure clearly shows that at the average size of arable land ($X = 56.73$ ha) the value of the marginal product function is 0.95 thousand UAH/ha. The value of sales revenue per hectare of arable land equals 11.510 thousand UAH.

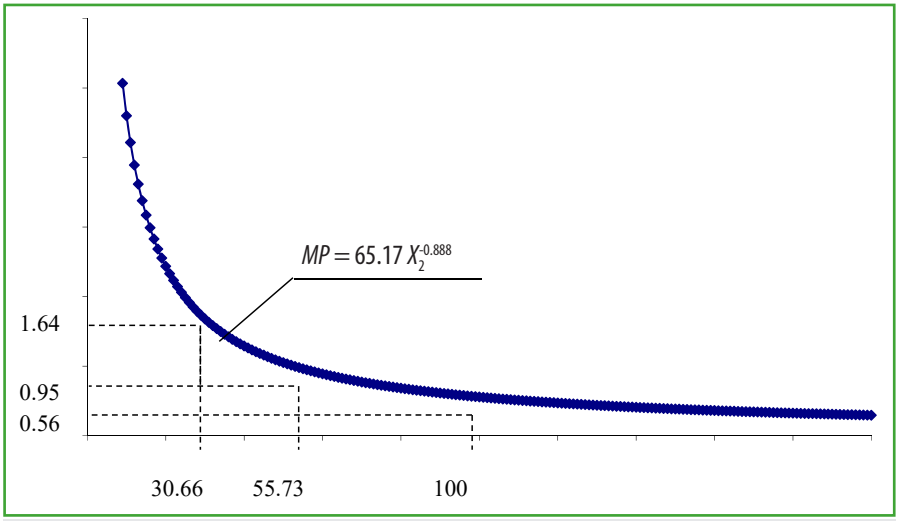

Figure 1 Dependence of the size of the marginal product on the size of arable land
Source: processed by the authors

To calculate the efficiency of use of this resource in small farms, it is necessary to determine the actual costs associated with attracting an additional resource – arable land in hectares.

According to the Law of Ukraine "On Farming" land of farms consists of land plots belonging to the ownership of the farm as a legal entity; land belonging to citizens – members of a farm with the right of private property; land used by the farm on lease terms (Law of Ukraine, 2003).

In this regard, in 2018 the Verkhovna Rada of Ukraine adopted in the first reading a bill which, in particular, provides simplification of access to agricultural land for citizens of Ukraine who have expressed a desire to farm. The bill also envisaged the introduction, in addition to traditional land auctions, of auctions, which may be exclusively Ukrainian citizens who are members of family farms, and at the time of the auction have no more than 20 hectares of land under cultivation. At the same time, the requirements for such lots stipulate that the land area should not exceed 5 hectares and the lease term is 7 years (for perennial crops – 25, for reclaimed land – 10 years) (Council, 2018).

The calculated rent of 1 ha of arable land for 2016 in Ukraine represented 1,093 UAH. With this approach, the use of the first production factor (arable land) can be considered redundant, and only 47.9 ha of arable land can be effective at this price.

Work in the production function is represented by the number of persons employed in agricultural production. In figure 2 a graph of the boundary product shows value based on the number of employees. Thus, the value of the marginal product for the average number of employees ($X = 2.4$) is 29.97 thousand UAH.

If the value of this factor of production is taken on the basis of the average annual wage in the farms of Ukraine which was 54 thousand UAH in 2017, then the optimal number of employees in the average farm should be 1.2 persons. Under these assumptions, labor is used excessively in farms.

Table 5 Calculation of the value of the marginal product by individualfactors of production

Factor kind of resource	Average resource productivity (revenue per unit of cost of the resource (thousand UAH)*	Limit function product	Size of the marginal product
X_1	11.510	$38.00\, X_1^{-0.917}$	0.95
X_2	267.447	$65.17\, X_2^{0.888}$	29.97
X_3	9.540	$46.85\, X_3^{0.878}$	1.16
X_4	18.373	$42.26\, X_4^{0.909}$	1.67
X_5	5.597	$48.04\, X_5^{0.840}$	0.89
X_6	2.617	$28.88\, X_6^{0.605}$	1.03

Source: calculated by the authors
* calculated as remove $\overline{Y}/\overline{X}_i$, where calculated on the production function by the average values in Table 3

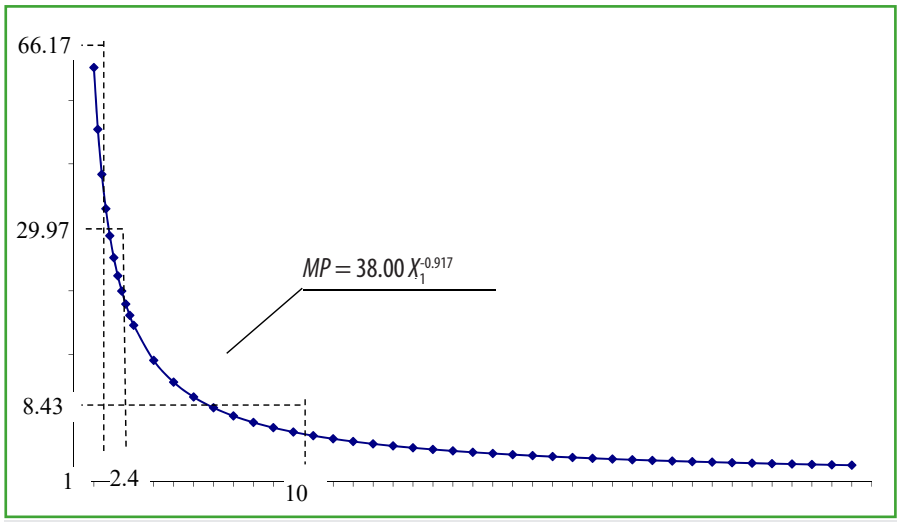

Figure 2 The dependence of the value of the marginal product of number of employees
Source: created by the authors

We make similar calculations for the use of other investigated types of production resources, which are measured in monetary terms. These production factors are optimally used by farms if $MPi = 1$; underused if $MPi > 1$; are used excessively if $MPi < 1$.

On the basis of this criterion, we assume that insufficient productive resources in small farms are other material costs, which include the acquisition of seeds and fertilizers (Table 6).

This circumstance is caused to a certain extent by the limited financial resources of farms for their acquisition and the lack of long–term prospects of their production activity, which does not stimulate the investment of financial resources in the restoration of fertility of agricultural lands.

The results of the calculations revealed a significant excess of the need for human resources in small farms. This circumstance is explained by the peculiarities of taxation of the studied organizational and legal form of management, in particular the presence of tax benefits when paying for education in higher education institutions of members of the farm.

The task of determining the optimal resource provision of the farm, provided that all the studied factors of production of allocative efficiency is reduced to finding the maximum production function. The task can be written in the following form:

$$\begin{gathered} Y = 9.664\, X_1^{0.0826} X_2^{0.112} X_3^{0.122} \\ X_4^{0.091} X_5^{0.1598} X_6^{0.3945} \rightarrow \max \\ 0.7980\, X_1^{-0.9174} X_2^{-0.112} X_3^{-0.122} \\ X_4^{-0.091} X_5^{-0.1598} X_6^{-0.3945} = 1.093 \\ 1.0831\, X_1^{0.0826} X_2^{-0.888} X_3^{0.122} \\ X_4^{0.091} X_5^{0.1598} X_6^{0.3945} = 54.00 \\ 1.1797\, X_1^{0.0826} X_2^{0.112} X_3^{-0.878} \\ X_4^{0.091} X_5^{0.1598} X_6^{0.3945} = 1 \\ 0.8799\, X_1^{0.0826} X_2^{0.112} X_3^{0.122} \\ X_4^{-0.909} X_5^{0.1598} X_6^{0.3945} = 1 \\ 1.5440\, X_1^{0.0826} X_2^{0.112} X_3^{0.122} \\ X_4^{0.091} X_5^{-0.8402} X_6^{0.3945} = 1 \\ 3.8127\, X_1^{0.0826} X_2^{0.112} X_3^{0.122} \\ X_4^{0.091} X_5^{0.1598} X_6^{0.6055} = 1 \end{gathered} \quad (3)$$

The Lagrangian solution to this problem allows us to determine a single point (30.66; 0.84; 49.55; 39.65; 64.85; 160.13). The critical point obtained is the point of the conditional local (also global) maximum of the function under constraint systems. Thus, the use of all production resources will be allocatively efficient if the farm has the resources provided in Table. 7. With a certain rational value of production resources,

Table 6 The results of the calculation of allocative efficiency(per 1 farm)

Factor, type of resource		Average in the sample	Cost of the resource	Optimal use of the resource	Conclusion
X_1	area of arable land (ha)	55.73	1093	47.9	excess
X_2	number of employees (persons)	2.40	54,000	1.2	excess
X_3	cost of petroleum products (thousand UAH)	67.23		80.0	insufficient
X_4	spare parts costs (thousand UAH)	34.91		61.5	insufficient
X_5	costs for the payment of works and services of third parties (thousand UAH)	114.61		100.3	excess
X_6	expenses for seeds, fertilizers, feed and other material resources (thousand UAH)	245.11		258.4	insufficient

Source: calculated by the authors

Table 7 The optimal values of the value of individual production resources are calculated (per 1 farm)

Factors (resources)		Optimal value
X_1	area of arable land (ha)	30.66
X_2	number of employees (persons)	0.84
X_3	cost of petroleum products (thousand UAH)	49.55
X_4	spare parts costs (thousand UAH)	36.95
X_5	costs for the payment of works and services of third parties (thousand UAH)	64.85
X_6	expenses for seeds, fertilizers, feed and other material resources (thousand UAH)	160.13

Source: calculated by the authors

the value of the proceeds from the sale of manufactured products is equal to 406 thousand UAH.

Conclusion

The results of the conducted researches give the grounds to state, that while maintaining the existing approaches of farmers regarding the priorities in the use of technologies and organization of production for objective reasons, to reduce physical consumption of these resources does not exist. It is fundamentally important to prove that allocative inefficiency is caused not by excessive use of resources in small farms, but above all by inflated prices for them and understated agricultural output.

It should be noted that in view of the disparities found in the increase in the level of input prices and the rate of their decline in final products, it is necessary to use a differentiated approach to each group of small farms (efficient and inefficient), since the impact of each type of factor on the achievement of positive changes in the performance indicators in each of these groups are different. In this case, the opinion of O. Chayanov, who argued about the peasant farms: "And before giving them any help in the form of reform of the economic system or treat it with credit, it is necessary to know what effect our remedy will have on this organism. We must study his life, his natural methods of dealing with ailments, ways of evolution and, most importantly, one must learn to determine the nerve of the economy, its most important parts, the most important ailments" (Chayanov O., 1989).

Therefore, according to our calculations, the use of all production resources will be allocatively effective if the farm provides the following values of individual production resources: arable land – 30.6 hectares, the number of employees – 0.84 people, the cost of oil products – 1,614.48 UAH/ha, the cost of spare parts – 1,205.15 UAH/ha, the costs of payment for works and services to third parties – 2,115.13 UAH/ha, the cost of seeds, fertilizers, feed and other mat expenses – 5,222.76 UAH/ha. It is established that, while maintaining the existing approaches of farmers to the use of technology and production organization, no prerequisites will be formed to reduce the physical consumption of these resources, which requires the creation of favorable conditions for the reorientation of small farms to intensive type of activity.

References

BYBA, V.A. – KORENETS, R.Ya, 2018. Ekonomichni aspekty derzhavnoi pidtrymky fermerskykh hospodarstv Ukrainy. In Ahrosvit, 2018, no. 11, pp. 27–32. ISSN 2306F6792.

BYBA, V.A. – TKACHENKO, K.V. – SVYNOUS, N.I. 2018. Ekonomichni aspekty zemlevykorystannia fermerskymy hospodarstvamy. In Ekonomika ta upravlinnia APK : zb. nauk. pr. Bila Tserkva, 2018, no. 1, pp. 113–123. ISSN 2310-9262.

CHAYANOV, O.V. 1989. Uchastkovaia ahronomyia y orhanyzatsyonnыi plan krestianskoho khaziaistv. Peasant farming. Moscow : Economics, 1989, pp. 52–69. ISBN 5282008351.

DEMCHAK, I.M. et al. 2018. Zahalni tendentsii rozvytku fermerskykh hospodarstv v Ukraini. NDI "Ukrahropromproduktyvnist", 56 p.

FARRELL, J. M. 1957. The measurement of Productive efficiency. In Journal of the Royal Statistical Society Series A, vol. 2, 1957, no. 125, pp. 252–267. http://dx.doi.org/10.2307/2343100

GNATISHIN, L.B. – KORDOBA, O.M. – LIPCHUK, V.V. 2016. Fermerski hospodarstva: stan, problemy ta stratehii rozvytku. monohrafiia, 2016, 236 p.

GOLUBEV, A. 2017. Fermerski hospodarstva Ukrainy: tendentsii rozvytku ta ekonomiko-sotsialna sutnist. Akademii pratsi, sotsialnykh vidnosyn i turyzmu. In Bulletin of the Academy of Labor, Social Relations and Tourism, 2017, no. 1, pp. 58–63. ISSN 2524-2466.

LAW OF UKRAINE ON FARMING. 2003. Verkhovna Rada of Ukraine of 19. 6. 2003. URL: http://zakon5.rada.gov.ua/laws/show/973-15

NESTERENKO, Yu. O. 2015. Simeini fermerski hospodarstva: tendentsii rozvytku v sviti ta suchasnyi napriam hospodariuvannia v Ukraini. Naukovi pratsi Kirovohradskoho natsionalnoho tekhnichnoho universytetu. In Ekonomichni nauky, 2015, no. 28, pp. 59–67. ISSN 2413-340X.

ON AMENDMENTS TO THE LAW OF UKRAINE "On Farming" on the Promotion of the Creation and Activity of Family Farms: Law of Ukraine of March 31, 2016, no. 1067–1068. URL: https://zakon.rada.gov.ua/laws/show/1067-19

The Council plans to simplify access to agricultural land for farmers, 2018. URL: https://www.ukrinform.ua/rubric-economy/2465300-rada-planue-sprostiti-dla-fermeriv-dostup-do-zemel-silgosppriznacenna.html

Contact address

Prof. Olga Varchenko, Bila Tserkva National Agrarian University, pl. 8/1 Soborna Bila Tserkva Kyivska oblast, 09117 Ukraine, e-mail: omvarchenko@ukr.net