

ECOLOGICAL AND ECONOMIC ASPECTS OF EXPENDITURE OF HUNTING FARMS IN ZAPORIZHZHIA REGION

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Abstract. *The purpose* of the article is to study the composition and cost structure of hunting farms in the Zaporizhzhia region and consider the economic and environmental aspects of their formation. The method of analysis and synthesis revealed the dynamics of changes in the costs of hunting farms over five years (2015, 2016, 2017, 2018, 2019). Using the method of comparison, the main trends in the change of individual loss items are identified. *Methodology.* The classification of costs, their dynamics and structure on 37 hunting farms of Zaporizhzhia region are given. The studied farms differ in different forms of use of hunting grounds. Thus, as of January 1, 2020, 6 farms were part of the Ukrainian Society of Hunters and Fishermen, 20 – belonged to the enterprises of the State Forestry Agency of Ukraine, the remaining 11 – were part of other private and public hunting organizations. A vertical and horizontal analysis of costs was conducted, which revealed an increase in their volume throughout the structure, without significant changes in the structure itself. There is a tendency to reduce the share of costs for the protection, reproduction and accounting of wild animals and the management of hunting grounds. Instead, the costs of maintaining the current activities of hunting farms are increasing. *The results* of the study showed that the main part of the costs of hunting farms in Zaporizhzhia region (almost 80%) consists of the cost of wages and a single social contribution, operation and maintenance of vehicles, hunting buildings and structures and costs associated with the purchase of weapons, ammunition and other costs. The costs of environmental activities are decreasing, among which the costs of biotechnical measures play an important role. The share of expenditures on biotechnical measures for the conservation and reproduction of wild animals in total expenditures decreased from 14.5% in 2015 to 11.8% in 2019. *Practical consequences.* The study found that the current costly model of hunting in the Zaporizhzhia region, and in Ukraine as a whole, does not meet market relations and inhibits the development of effective economic and environmental hunting. Its formation was influenced by the following factors: imperfection of hunting legislation; non-compliance with European standards; excessive number of hunting grounds in use and lack of a clear mechanism for payment for their use; poaching; lack of programs for breeding wild animals, control of predators and clear requirements for the hunting service; low level of hunting culture and ethics. The current hostilities in the Zaporizhzhia region further complicate the environmental situation. *Value/originality.* Economic evaluation of hunting farms should take into account, in addition to estimating the direct costs and revenues of hunting farms, their total environmental, economic and social role. This is confirmed by foreign experience. For its implementation there is a need to develop a new methodology.

Key words: hunting farms, classification of costs, composition and structure of costs, costs of biotechnical measures, costs of protection and reproduction, costly management model.

JEL Classification: D21, M21, O13, Q29

1. Introduction

The experience of developed countries shows that hunting is a tool for preserving the environment and a source of financial income to state and regional budgets. In Ukraine, the existing

costly model of hunting has survived since Soviet times. It does not correspond to modern market relations, primarily because the lands on which hunting activities are carried out belong to the state form of ownership. Accordingly, hunting in

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Ukraine is carried out by users of hunting grounds (state enterprises, public organizations, private enterprises).

The size of expenses has a significant influence on the formation of financial results. It is also the basis for evaluating the company's performance. Achieving maximum economic and environmental efficiency of hunting farms depends on their ability to address cost management. The study analyzed the costs of 37 hunting farms in the Zaporizhzhia region for the period 2015–2019. As of January 1, 2020, 1508.1 thousand hectares (83.2%) of hunting grounds were provided for use by organizations of the Ukrainian Society of Hunters and Fishermen (UHFA), 192 thousand hectares (10.6%) – to the enterprises of the State Forest Agency of Ukraine (SE ULMG), 113.5 thousand hectares (6.3%) – to other private and public hunting organizations (Statystychna zvitnist Zaporizkoho oblasnoho upravlinnia lisovoho ta myslyvskoho hospodarstva, 2020).

2. Content and structure cost of hunting farms

Costs are the use of resources in the activities of any enterprise in order to achieve its goal and is a stable driving force that allows it to maintain its competitive position and be profitable.

Determining the types of costs, initiated the formation of the classification of costs. The classification of enterprise costs is their systematization and grouping for the needs of their management. Cost information, grouped in different ways, is needed for effective business management. On the one hand, the identified and formulated needs of cost management determine the choice of classification criteria and the division of the total costs of the enterprise in accordance with them. On the other hand, a more detailed study of the classification of costs allows to identify new criteria for distinguishing and groups of costs and thus improve the information support of decision-making, provide the necessary information (Kozachenko, Pogorelov, 2008).

The specifics of hunting, as an independent branch of the economy, has its impact on the content and structure of costs. The activity of hunting farms is mostly accompanied by such costs as: organization of hunting farms (arrangement of hunting grounds and periodic inventory); biotechnical measures; administrative

expenses (maintenance of management, hunters and other categories of employees); special shooting (catching) of wild animals, processing, preservation and sale of hunting products; resettlement and acclimatization of valuable species of hunting fauna, semi-artificial maintenance, breeding work, etc.; prevention of damage that can be done by wild animals (protection of plantations and agricultural crops, fencing of plots, purchase and use of deterrents, etc.); prevention of damage that may be caused to hunting fauna (shooting of predators, stray dogs, etc.); payment for the use of natural resources; dog costs (breeding, keeping and training of hunting dogs); capital construction and repair (hunting lodges, shelters, shooting ranges, etc.); purchase of equipment, hunting equipment, ammunition, low-value equipment, etc.; scientific work; transportation costs; expenses for own activity; coverage of damage caused by wild animals to agriculture and forestry (Torosov, Zuev, Kharchenko, 2012).

In hunting farms the main costs include the cost of feed, seeds, ammunition, medicines, biologicals and disinfectants, containers and packaging materials, the cost of litter for animals (straw, peat, sawdust) in enclosures, construction materials, the cost of sperm in artificial breeding, auxiliary and other materials necessary for the main activities of the hunting economy, the cost of works and services of production of third-party enterprises and organizations, the cost of fuel and energy for the economy, labour costs and contributions to state social insurance hunters, maintenance and operation costs vehicles of industrial nature (fuels and lubricants, spare parts). Overheads include costs associated with the organization, management and maintenance of the hunting economy, namely: general production – the cost of wages and social security contributions of hunters, veterinarians, insemination technicians and other hunting workers, depreciation of industrial vehicles, expenses for overalls and special footwear of hunters and hunting experts; administrative costs, marketing costs and other costs (Medvid, Govda, 2013).

According to the Report on hunting management (Form № 2 – TP (hunting) (annual)), the types of expenses included salaries of employees employed in hunting; protection, reproduction and registration of wild animals, arrangement

of hunting grounds (including: registration of hunting animals, protection of wild animals; reproduction of hunting animals, taking into account biotechnical measures: resettlement of hunting animals and birds and laying of fodder for their feeding); streamlining of hunting grounds (Pro zatverdzhennia form derzhavnykh statystychnykh sposterezhen iz ekolohii, lisovoho ta myslyvskoho hospodarstva: Nakaz Derzhavnoi sluzhby statystyky, 2017).

According to the results of the vertical analysis, the total costs of hunting farms in the Zaporizhzhia region for the period 2015–2019 increased by 65.9% (Table 1). Expenses for protection and reproduction increased by 25.5%, other expenses – by 79.7%.

Among the types of costs for protection and reproduction, there are various trends. In particular, in recent years there have been no costs for the registration of animals, landscaping of hunting grounds.

In the structure of total costs of hunting farms, the largest share is occupied by other costs (Figure 1). These include the wages of workers employed in the hunting economy, the single social contribution; costs of operation and maintenance of vehicles, hunting buildings and structures; costs associated with the purchase of weapons, ammunition and other expenses.

According to the results of the horizontal analysis, the share of other expenses increased from 74.5 to 80.7% of the total cost. Accordingly, the costs of protection and reproduction of animals decreased by 6.2%.

3. Biotechnical measures as an environmental component of costs

Expenditures aimed at the protection, reproduction and accounting of wild animals and the management of hunting grounds are the main component of the activities of hunting farms, the effective use of which improves the environmental component and increases the financial performance of hunting. Among them, the cost of biotechnical measures plays an important role. Biotechnical measures in hunting farms are carried out to reduce the negative impact of man on the fauna and flora, to compensate for the damage caused to nature, to create a normal environment for the existence of game (Muraviov, 2019).

The Law of Ukraine "On Hunting Farms and Hunting" defines biotechnical measures as a set of various economic works aimed at improving the living conditions, reproduction and increasing the number of hunting animals (Pro myslyvske hospodarstvo ta poliuvannia: Zakon Ukrainy, 2000). These include: winter feeding of hunting animals, improvement of forage, protective and nesting properties of lands, pest control, resettlement, acclimatization and acclimatization of hunting animals and birds, creation of reserves, reproductive areas and rest areas, works on protection of hunting animals from infectious and invasive diseases.

Carrying out biotechnical measures, creation of reserves, sanctuaries and state hunting reserves, setting harvesting deadlines, bans on hunting certain species of animals – these measures allow

Table 1

Dynamics of costs for hunting farms of Zaporozhye region for 2015–2019, thousand UAH

Indicators	2015	2016	2017	2018	2019	2019 in % to 2015
Total expenses on running hunting farms	9106,7	10072,2	11937,6	16807,4	15106,9	165,9
The cost of security, reproduction, incl. Animal count	2321,2	2790,9	3056,1	3065,3	2913,0	125,5
Protection of animals	38,8	50,8	53,2	2,0	-	-
Biotechnical activities for conservation and reproduction of wild animals	896,2	1099,0	1224	60,8	1227,2	136,9
of them resettlements of animals	1323,1	1604,9	1750,4	1657,6	1685,8	127,4
installation of biotechnical structures	144,2	362,9	206,3	246,4	293,4	у 2 рази
purchase of feed for animals	246,3	241,0	506,0	265,6	59,2	24,0
Maintenance of hunting grounds	932,6	1001,0	1038,1	1145,6	1333,2	142,9
Other expenses	63,1	36,2	28,5	28,5	-	-
	6785,5	7281,3	8881,46	13742,1	12193,9	179,7

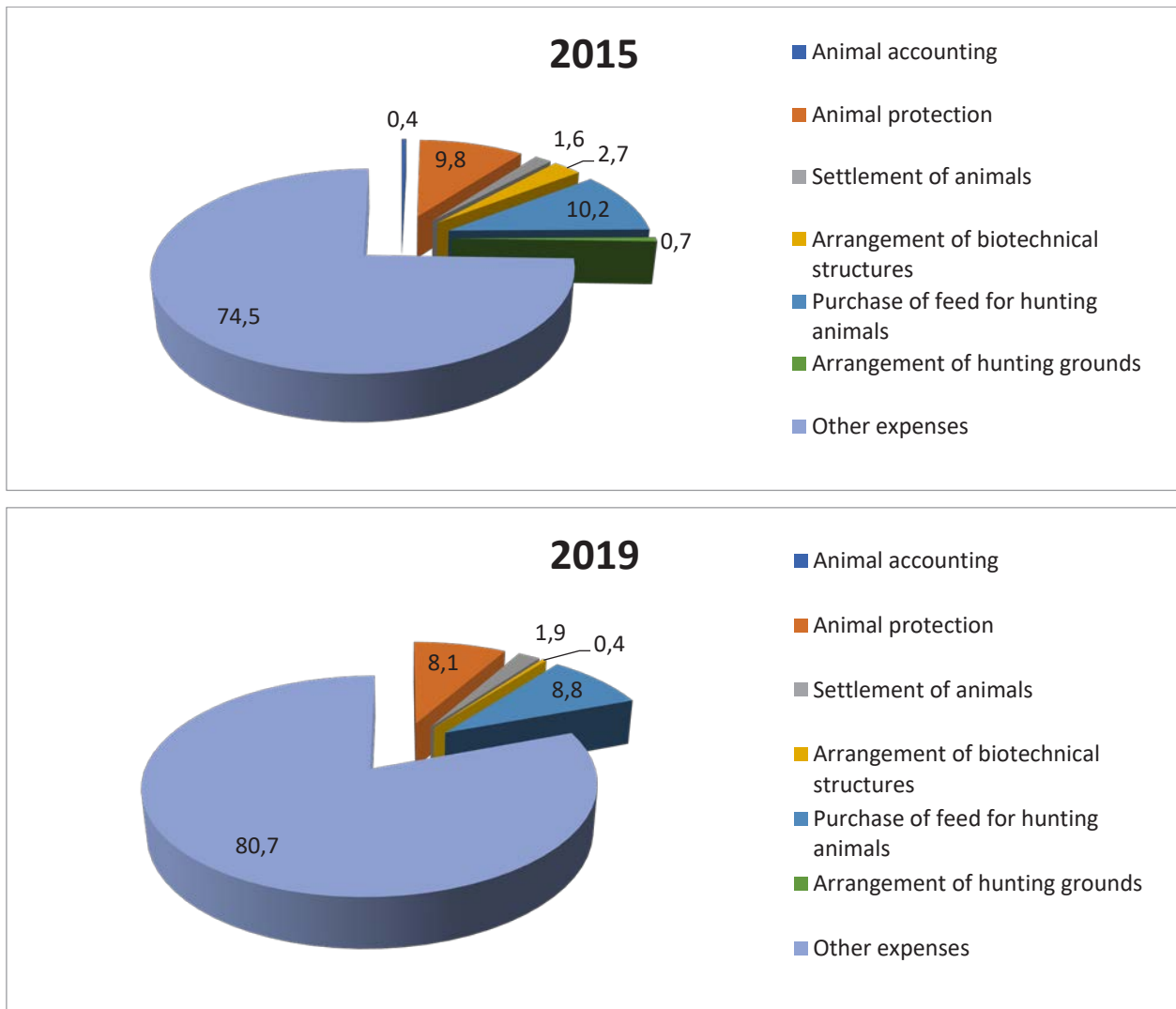


Figure 1. Structure of costs for hunting activities, %

to restore and increase the number of many valuable species of animals (elk, sable, beaver) and birds, almost completely destroyed (Novytskyi, Domnych, 2011)

Management of economically useful faunal complexes involves maintaining the optimal number of their groups at a set level at which the rate of reproduction of the latter reaches satisfactorily stable values (Watt, 1971).

Among the costs of conducting biotechnical activities in hunting farms in the Zaporizhzhia region, the costs of arranging biotechnical facilities decreased the most (4.2 times). The cost of feeding for hunting animals increased slightly and the cost of relocating animals doubled. As a result, many hunting farms in the region lack or lack biotechnical facilities, there is insufficient volume and low nutritional value of harvested

fodder, in general or unsystematically fodder crops are sown. The share of expenditures on biotechnical measures for the conservation and reproduction of wild animals in total expenditures decreased from 14.5% in 2015 to 11.1% in 2019 and tends to decrease further (Figure 1).

The rational use of hunting resources should be based on their planned and inexhaustible exploitation, when the pre-industrial number of a particular species from year to year will remain close to optimal for the established middle-class quality of local lands, against the background of planned environmental measures to maintain or improve living conditions. and animal breeding. At the same time, in our country the primitive technique of normalized extraction of hunting resources is still legally regulated and professed by users of hunting lands, while in developed

countries equal attention is paid to much more effective spatial and qualitative approaches (Volokh, 2004).

According to the Law "Hunting as a branch – a sphere of social production, the main tasks of which are protection, regulation of wildlife, use and reproduction of hunting animals, providing services to hunters to hunt, development of hunting dogs" continued. This indicates that the main goal of hunting farms as an industry is not achieved, because the current management model the main direction of their activities, namely – improving environmental activities in the field of nature, aimed at preserving habitat, species diversity and genetic fund of wild animals, regulation of their numbers, protection, reproduction and rational use of populations of hunting animals as a natural resource and component of ecosystems has no continuation (Myronenko, Sheremet, Protsiv, Bashta, Delehan, Vovchenko, Stankevych-Volosianchuk, Burmas, Novikov, Karabchuk, 2015).

This situation is typical of hunting farms in Ukraine as a whole, with a small difference in trends by region. It does not help to improve their economic situation, as the efficiency of hunting depends primarily on adherence to the principles of biodiversity conservation and productivity of hunting grounds.

4. Conclusions

Today's costly model of hunting management, which has remained from previous times, shows its inefficiency and imperfection, and the financial and economic situation in the country does not contribute to the further development of the hunting industry. Analysis of the dynamics of the costs of hunting farms in Zaporozhe region

shows that currently they simply maintain their existence by reducing the share of funding for the main activity (costs of protection, reproduction and accounting of wild animals and landscaping). The main part of the costs (almost 80%) is spent on salaries of workers employed in hunting, the single social contribution; costs of operation and maintenance of vehicles, hunting buildings and structures; costs associated with the purchase of weapons, ammunition and other expenses.

During the hostilities in the Zaporizhzhia region, the situation worsens due to fires. Due to the actions of the occupiers, who do not allow forest protection to fight fires, dry and windy weather, timely localization of fires is difficult. Thus, the fire destroys entire forest ecosystems, which will then be difficult to restore and requires large expenditures. In order to bring the hunting industry out of the crisis to a profitable, competitive level, in addition to state support, it is necessary to pay attention to changes in economic assessment that would significantly affect the formation of financial results.

Foreign experience of economic assessment of the importance of hunting farms shows that the material value, in addition to harvested game, is the consumer value of services. These services are directly related to hunting, production and consumption of goods for its needs. In addition to direct costs, it is necessary to assess the economic role of hunting, which would take into account the growth of investment and activation of various sectors of the economy based on meeting the needs for its conduct. To do this, it is necessary to develop a new methodology that would assess in addition to direct costs and revenues from hunting, the total environmental, economic and social role of this important area of nature.

References:

- Kozachenko, H. V., & Pohorelov, Yu. S. (2008). Udoskonalennia klasyfikatsii vytrat pidpriemstva [Improvement of classification of charges of enterprise]. *Visnyk ekonomichnoi nauky Ukrainy*, vol. 2, pp. 81–85.
- Makarynska, O. V., & Honta, D. S. (2019). Benchmarkinh yak instrument pidvyshchennia konkurentospromozhnosti malykh pidpriemstv [Benchmarking as a tool to increase the competitiveness of small businesses]. Proceedings of the Priorytetni napriamy doslidzhen v naukovi ta osvithni diialnosti: materialy mizhnar. naukovo-prakt. konf (Ukraine, Lviv, December 5-6, 2019). Lviv.
- Medvid, L., & Hovda, H. (2013). Klasyfikatsiia vytrat myslyvskykh hospodarstv yak metodolohichna osnova orhanizatsii yikh obliku i kontroliu [Classification of costs of hunting farms as a methodological basis for the organization of their accounting and control]. *Bukhhalterskyi oblik i audit*, vol. 11, pp. 15–26.
- Myronenko, M. O., Sheremet, I. M., Protsiv, O. R., Bashta, A. T., Delehan, I. V., Vovchenko, V. Yu., Stankevych-Volosianchuk, O. I., Burmas, V. R., Novikov, R. I., & Karabchuk, D. Yu. (2015). Proekt modeli reformuvannia i rozvytku myslyvskoho hospodarstva Ukrainy. Zhovten [Draft model of reforming and

development of the hunting economy of Ukraine. October]. Available at: <https://www.slideshare.net/enpifleg/ss-65435331> (accessed 22 April 2022).

Muraviiov, Yu. V. (2019). Doslidzhennia vytrat i dzherel nadkhodzhennia vid vedennia myslyvskoho hospodarstva Lvivskoi oblasti [Research of costs and sources of income from hunting in Lviv region]. *Naukovyi visnyk NLTU Ukrainy*, vol. 29, no. 4, pp. 50–52.

Novytskyi, R. O., & Domnych, V. I. (2011). *Osnovy myslyvstvoznavstva* [Basics of hunting science]. Dnipro: Artholos. (in Ukrainian)

Pro zatverdzhennia form derzhavnykh statystychnykh sposterezhen iz ekolohii, lisovoho ta myslyvskoho hospodarstva: Nakaz Derzhavnoi sluzhby statystyky [On approval of forms of state statistical observations on ecology, forestry and hunting: Order of the State Statistics Service] of 30.08.2017 № 239. Available at: <https://zakon.rada.gov.ua/rada/show/v0243832-14> (accessed 01 September 2021).

Pro myslyvske hospodarstvo ta poliuvannia: Zakon Ukrainy [On hunting farms and hunting: Law of Ukraine] of 22.02.2000 № 1478-III. Available at: <http://zakon.rada.gov.ua/laws/show/1478-14> (accessed 22 April 2022).

Sobolevska, O. O. (2021). Osnovni aspekty formuvannia vytrat myslyvskykh hospodarstv [The main aspects of the formation of costs of hunting farms]. Proceedings of the Ahrarna osvita: mynule, suchasne, maibutnie: Zb. materialiv Mizhnar. nauково-prakt. konf., prysviach. 100-richchiu Luhan. nats. ahrar. un-tu (Ukraine, Sloviansk, November 15-16, 2021). Sloviansk.

Sobolevska, O. O. (2021). Formuvannia dokhodiv myslyvskykh hospodarstv Zaporizkoi oblasti [Income formation of hunting farms of Zaporizhia region]. *NV LNUVMB im. S. Z. Hzhyt'skoho*, vol. 23, no. 97, pp. 41–47.

Statystychna zvitnist Zaporizkoho oblasnoho upravlinnia lisovoho ta myslyvskoho hospodarstva. Forma 2–TP Myslyvstvo za 2015–2019 rr. (2020) [Statistical reporting of the Zaporizhzhia Regional Department of Forestry and Hunting]. Available at: <https://zaplis.gov.ua>

Torosov, A. S., Zuiiev, Ye. S., & Kharchenko, Yu. V. (2012). Ekonomiko-pravovi aspekty hroshovoi otsinky myslyvstva [Economic and legal aspects of monetary valuation of hunting]. *Lisnytstvo i ahroliso-melioratsiia*, vol. 120, pp. 149–155.

Volokh, A. M. (2004). Velyki ssavtsi Pivdennoyi Ukrayiny v XX storichchi (dynamika arealiv, chysel'nosti, okhorona ta upravlinnya) [Large mammals of Southern Ukraine in the XX century (Dynamics of Arealis, Numbers, Guard and management)]. Kyiv. (in Ukrainian)

Watt, K. (1971). *Ekologiya i upravleniye prirodnymi resursami: kolichestvennyy podkhod* [Ecology and management of natural resources: quantitative approach]. Under a release and preface Naumov N.P., Mir. (in Russian)