



IMPROVING COST CALCULATION METHODS FOR LIVESTOCK PRODUCTS UNDER HIGH INDUSTRY RISK CONDITIONS

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ABSTRACT

This article examines current problems in the livestock industry, as well as the specifics of organizing product cost calculation at enterprises in this sector. The main approaches and methods for calculating costs, their advantages, and practical significance for improving business efficiency are discussed. Special attention is given to cost optimization at small and start-up enterprises. Recommendations aimed at developing the industry and increasing domestic food production are proposed. The study is considered primarily with reference to the Republic of Uzbekistan, though the approaches may also be applicable in international practice.

Keywords: livestock, cost calculation, management accounting, cost optimization, agriculture, costing methods, production costs, enterprise efficiency, Republic of Uzbekistan.

LITERATURE REVIEW

In her article, Rosa Arkadyevna Vanyukova, senior lecturer at Mari State University, examines the problems of calculating livestock product costs. The author notes that feed costs constitute a significant share of the total cost, with accounting complicated by the dependence of feed consumption on the age and weight of animals. This leads to difficulties in accurately allocating costs among individual technological groups of livestock[1].

The work of Natalya Sergeyevna Gruzinova clearly demonstrates the advantages of the direct costing method through comparative analysis. This article provides a deeper understanding of the direct costing method[2].

In their article, Udovikova Alla Alexandrovna and Fedorova Tatyana Vasilyevna examine the characteristics of cost formation and product cost calculation in livestock farming within the management accounting system. Special attention is paid to the need for detailed analytical cost accounting by type of animal, technological groups and expense categories. The authors note that the complexity of cost calculation in livestock farming is associated with the lengthy production cycle, the presence of by-products, and the need to allocate indirect costs among various product types. The article emphasizes that well-organized management accounting enables more accurate cost determination, cost control, and improved efficiency of agricultural enterprises[3].

The methods of allocating costs between offspring and milk were examined in the article by Svetlana Mugadovna Tkhamokova, where the author analyzes existing approaches to calculating dairy cattle product costs. The work considers both the traditional method of distributing costs at 90% to milk and 10% to offspring, and a more detailed approach based on distributing expenses by individual cost items. The author concludes that a more detailed methodology allows more accurate cost determination, but involves greater computational effort[4].

INTRODUCTION

Livestock farming is one of the strategically important sectors of the economy, providing basic food production and playing a significant role in ensuring the country's food security. The efficiency



of enterprises in this industry largely depends on the level of organization of production and management accounting, as well as on the quality of product cost calculation.

In the context of limited resources and rising production costs, the application of costing methods that allow for more accurate determination of the cost structure and identification of optimization opportunities becomes particularly relevant. The use of various costing methods contributes to a detailed understanding of the enterprise's business activities, since each approach allows analysis of product costs from different perspectives.

However, it should be noted that implementing a full management accounting system at small enterprises is often associated with additional financial costs, including the need to engage qualified specialists. In this regard, managers of small enterprises are recommended to familiarize themselves with the basic principles of management accounting and independently apply the main costing methods, which may contribute to improved management efficiency and business sustainability.

The official report of the National Committee of the Republic of Uzbekistan on Statistics published data on the production of cattle in live weight. Table 1 presents changes in cattle production from 2016 to 2024.

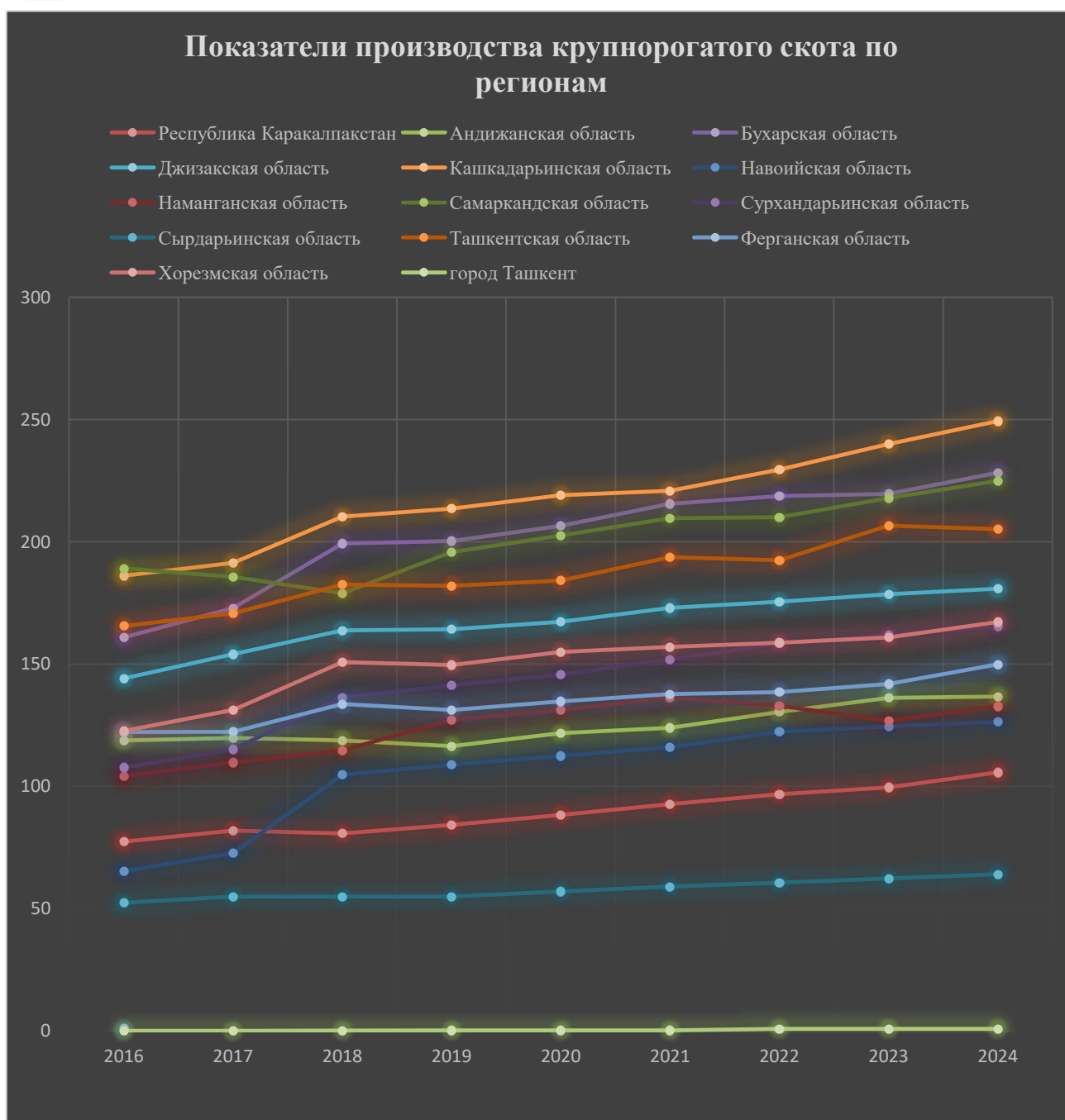


Table 1 "Information on produced cattle (in live weight) across all farm categories, compiled on an annual basis". Note: data on the vertical axis are in thousands of tonnes.[5]

As shown in the table above, all regions demonstrate moderate growth over the selected period.



Table 2 "Average annual growth rate in percentage". Note: absolute changes were calculated and used as the basis for the percentage change calculation

The city of Tashkent was not included in the list due to the absence of adequate indicators that could illustrate the situation in greater detail.

Based on the data presented, the livestock industry has been developing steadily with no signs of a significant production decline. The observed dynamics indicate that the industry retains its strategic importance for the economy and the country's food security.

In order to further the intensive development of livestock farming in the Republic of Uzbekistan, the significance of this sector was enshrined in the Livestock Development Program for 2022–2026, approved by Decree of the President of the Republic of Uzbekistan dated February 8, 2022, No. PP-120[6]. Within this document, livestock farming is regarded as a key factor in ensuring food security, increasing rural employment, and expanding the country's export potential through high-value-added production.

ANALYSIS AND RESULTS

One of the main problems in livestock farming remains the high cost of production, driven by the significant share of feed costs, high energy and capital intensity, and the biological specifics of the industry. Other cost-increasing factors include insufficient automation of accounting and the absence of a management accounting and cost control system.[7]

The production process in livestock farming depends on biological factors — genetics, animal health, housing and feeding conditions, climate, and epizootic situations, making production results probabilistic and increasing exposure to risks. At the same time, the industry is characterized by high capital intensity: a significant portion of costs is associated with creating and maintaining the material base (farms, feed storage, machinery), increasing the share of fixed costs in the overall cost structure[8]

From the perspective of management accounting, the process of raising cattle can be conventionally divided into several sequential stages:

- acquisition or registration of newborn young stock;
- fattening of the herd;
- herd reproduction;
- obtaining primary and by-products of livestock farming.



At the initial stage, biological assets are measured at fair value less costs to sell[9].

The greatest importance from an accounting organization perspective belongs to the subsequent stages of production, as it is at these stages that the main production costs are formed and allocated.

In practice, the process of fattening young cattle is generally divided into three sequential stages:

- rearing;
- growing-on;
- fattening.

It is assumed that adherence to the above stages allows for the most efficient conduct of business from both an economic and technological perspective[10].

At this stage, it is recommended to clearly distinguish core activities from auxiliary ones for the convenience of cost analysis, which corresponds to the direct costing.

Cost analysis using the direct costing involves classifying expenses as fixed and variable, direct and indirect. This method of analysis allows for faster assessment of efficiency and identification of unprofitable products, evaluation of marginal profit by product type, and modeling the impact of production volume and price changes on financial results[11]. However, the direct costing method is not suitable for full cost calculation.

In my opinion, marginal profit analysis in livestock farming is most effectively conducted by individual herd groups, pre-classified by qualitative or quantitative characteristics[12]. This approach allows for comparing the efficiency of live weight gain, identifying the most productive animal groups, and assessing the impact of various factors on profitability.

The grouping criteria are determined independently by the enterprise depending on the objectives of management analysis. Classification criteria may include animal age, breed, productivity level, weight gain indicators, housing conditions, and other characteristics affecting costs and financial performance.

Fixed costs can be allocated among the formed herd groups using appropriate cost drivers.

In particular, rental expenses should reasonably be allocated in proportion to the area occupied by the respective herd, while utilities may be allocated based on factors most closely related to resource consumption. For example, water supply costs may be attributed to animal groups in proportion to head count. A similar approach applies to other fixed costs depending on the nature of their occurrence and economic relationship with the accounting object.

Herd reproduction is the final stage of the cattle production cycle, after which the production cycle begins anew. Reproduction refers to both the acquisition of new animals and the obtaining of own offspring for the subsequent renewal and expansion of the herd.

When forming costs associated with maintaining a dairy herd, accounting has its own characteristics, as the production process simultaneously yields several product types — milk and offspring. Under the traditional approach, costs may be allocated at 90% to milk and 10% to offspring. Despite its simplicity, this method is conditional in nature, as it does not account for the technological specifics of production or differences in the cost structure for each product type.

A more justified approach is the allocation of costs by individual expense items. Under this approach, costs for feed, labor, maintenance of fixed assets, and other expenses are allocated between milk and offspring according to their actual participation in the production process. This allows for more accurate cost determination and enhances the reliability of management information.[13].



CONCLUSION

In conclusion, the livestock industry is characterized by a high level of production risks, significant capital intensity, and a complex cost structure, making cost calculation issues particularly relevant. The analysis has shown that applying various management accounting methods allows for a more detailed assessment of the cost structure, identification of unprofitable activities, and more informed management decisions. The most effective approach to cost accounting must consider the specifics of the technological process, the particularities of product formation, and the need for analytical allocation of costs among individual animal groups and product types. Using elements of the direct costing method and more detailed cost allocation approaches contributes to improved accuracy of cost calculation and quality of management information. Under the conditions of sustainable development of livestock farming in the Republic of Uzbekistan, improving cost calculation methods can become one of the factors in increasing the efficiency of agricultural enterprises, enhancing their profitability, and strengthening the country's food security.

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