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Article

Improving the Theoretical and Methodological Foundations of Income and Expense Accounting in Vegetable-Growing Farms

Shaxloxon Sagdiyevna Dexkanova[1]

1. Independent Researcher, Tashkent State Agrarian University, Tashkent, Uzbekistan.

Abstract: This article examines the theoretical foundations of income and expense accounting in vegetable-growing farms, existing methodological approaches, and potential areas for improvement. Particular attention is paid to the seasonality of vegetable production, the perishability of agricultural products, the composition of production costs, price fluctuations, and the economic significance of family labor. The study employs systems analysis, comparative analysis, logical generalization, and economic analysis. Methodological recommendations are developed for recording costs by crop and crop rotation, allocating direct and indirect costs using appropriate allocation bases, separately accounting for post-harvest expenses, and applying contribution margin, profitability, and break-even indicators. The relationship between international practices and the existing accounting framework in Uzbekistan is also examined. The findings provide a conceptual basis for improving the reliability of accounting information and supporting economically justified management decisions in vegetable-growing farms. The proposed approaches require further empirical testing using farm-level data.

Keywords: vegetable production, income, expenses, accounting, management accounting.

1. Introduction

Improving agricultural production efficiency, strengthening food security, and stabilizing producers' incomes largely depend on the accuracy of economic information concerning farm operations. Accurate income and expense accounting is particularly important in vegetable production, which is characterized by short growing cycles, high labor intensity, product perishability, and seasonal fluctuations in market prices.

An increase in production volume does not necessarily result in a proportional increase in net profit. Higher yields may be accompanied by increased expenditure on seeds, fertilizers, water, energy, labor, and product preparation for sale. Moreover, the simultaneous release of harvested vegetables onto the market may contribute to declining prices. Therefore, assessing economic performance solely on the basis of gross revenue or production volume is insufficient.

The Law of the Republic of Uzbekistan "On Accounting" establishes the legal framework for organizing and maintaining accounting records and preparing financial statements [1]. In addition, the Strategy for the Development of Agriculture of the Republic of Uzbekistan for 2020–2030 identifies improvements in sectoral efficiency and the development of value chains as important policy priorities [2].

Under these conditions, improving income and expense accounting in vegetable-growing farms, allocating costs accurately among accounting objects, and evaluating

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financial results using contemporary economic analysis methods constitute important scientific and practical tasks.

The purpose of this study is to examine the theoretical and methodological foundations of income and expense accounting in vegetable-growing farms and to develop recommendations for improving these practices.

The research objectives are to explain the economic nature of income and expenses, comparatively assess existing accounting methods, identify cost factors specific to vegetable production, and propose a set of indicators for evaluating farm performance.The theoretical foundations of income and expense accounting have been extensively discussed in financial accounting, management accounting, and agricultural economics. The relevant literature can be divided into three broad groups: studies examining the economic nature of income and expenses, research on production cost accounting in agricultural enterprises, and studies addressing contemporary management accounting and international practices.

Chayanov's [3] theory of the peasant household emphasizes the relationship between family labor, production, and consumption. This perspective is particularly relevant to evaluating the economic performance of smallholder and household farms engaged in vegetable production. Family members' labor is frequently not recorded as a separate wage expense. Consequently, accounting based exclusively on cash expenditures may underestimate production costs and overstate the farm's economic efficiency.

Kay et al. emphasize the integrated assessment of production resources, costs, revenues, and financial outcomes in farm management. This approach provides a methodological basis for comparing crop types and production technologies in vegetable-growing farms.

Horngren et al. provide theoretical foundations for classifying costs according to management needs, distinguishing variable from fixed costs, and analyzing cost–volume–profit relationships. These approaches can help vegetable-growing farms determine their break-even points, evaluate the effects of price reductions on profitability, and improve resource allocation.

International methodological guidance is also relevant. The Food and Agriculture Organization of the United Nations [4] provides recommendations for collecting, compiling, and disseminating agricultural cost-of-production statistics. The European Union's Farm Accountancy Data Network (FADN) facilitates the systematic collection and comparison of information on farm incomes and economic performance [5].

International Accounting Standard 41, *Agriculture*, establishes specific accounting requirements for biological assets and agricultural produce at the point of harvest [6]. Although this standard addresses the economic characteristics of biological transformation, it does not eliminate the need for detailed crop-level cost accounting to support internal management decisions.

The literature suggests that accounting methodologies for vegetable-growing farms should integrate financial reporting requirements with practical management accounting tools. Particular attention should be paid to the valuation of family labor, separate recording of post-harvest expenses, crop-rotation-based cost accounting, and price-risk analysis. This study addresses these issues as interconnected elements of an integrated accounting and analytical framework [7].

2. Materials and Methods

The methodological framework of the study is based on a systems approach, scientific abstraction, comparative analysis, logical generalization, and economic calculations. The research draws on academic literature in agricultural economics and management accounting, accounting-related regulatory documents, and international methodological sources.

The research object is the process of income and expense accounting in farms engaged in vegetable production. The research subject comprises the methodological relationships associated with revenue recognition, cost classification, product cost calculation, and the assessment of economic performance.

In vegetable-growing farms, sales revenue generally constitutes the principal source of income. However, a comprehensive assessment of farm performance also requires the systematic recognition of production costs. A simplified model for determining the financial result is expressed as follows:

$R = Q_s \times P$, $P_i = R - C.$

where R is sales revenue, Q_s is the quantity of products sold, P is the selling price, P_i is the simplified financial result, and C represents the total expenses attributable to the relevant period.

These formulas use the concept of financial result in a simplified sense. In full financial reporting, the cost of goods sold, operating expenses, other income and expenses, and taxes must be accounted for separately.

For analytical purposes, costs are classified as direct or indirect and, separately, as variable or fixed. This classification supports product cost calculation and the evaluation of how changes in production volume affect financial performance.

3. Results and Discussion

3.1 Specific Features of Income and Expense Accounting in Vegetable Production

Improving accounting practices in vegetable-growing farms requires consideration of the biological and economic characteristics of production.

The first characteristic is the possibility of cultivating several crops on the same land during a single year. Under such conditions, recording costs only as an annual aggregate makes it difficult to determine the production costs and profitability of individual crops [8].

The second characteristic is the perishability of vegetables. After harvesting, additional expenses arise from sorting, packaging, storage, and transportation. Limited storage capacity may also force producers to sell their products during periods of relatively low prices. Therefore, recording post-harvest expenses and product losses separately can improve the quality of economic analysis [9].

The third characteristic is the substantial role of family labor. If the labor contributed by family members is excluded from the analysis, the results based on cash expenditures may not fully reflect the farm's economic efficiency. Accordingly, actual labor payments should be recorded in financial accounting, while the imputed or opportunity cost of family labor should be separately considered in management analysis [10].

Table 1. Main Directions for Improving Income and Expense Accounting in Vegetable-Growing Farms

Area	Existing methodological problem	Proposed improvement	Expected outcome
Accounting objects	Costs recorded in aggregate	Separate accounting by crop and crop rotation	More accurate cost calculations
Labor accounting	Family labor insufficiently valued	Record labor hours and their imputed value separately	More realistic economic performance assessment
Post-harvest costs	Storage and sorting expenses aggregated	Record costs by individual category	Identification of sources of losses

Area	Existing methodological problem	Proposed improvement	Expected outcome
Cost allocation	Unclear allocation bases for indirect costs	Allocate using labor hours, land area, or machine hours	More comparable product costs
Revenue analysis	Excessive emphasis on sales revenue	Jointly assess profit, contribution margin, and profitability	Better-informed management decisions
Risk assessment	Price and yield fluctuations insufficiently considered	Apply sensitivity and break-even analysis	Improved financial risk management

Source: Developed by the author based on the reviewed literature and research methodology.

Table 1 indicates that accounting improvement involves more than organizing bookkeeping documents. It also requires linking economic information generated throughout production, labor, storage, and sales activities.

3.2 Cost Classification and Product Cost Calculation

Accurate cost classification is a prerequisite for determining production costs in vegetable-growing farms. Direct costs include seeds, seedlings, fertilizers, plant protection products, and labor expenses that can be directly attributed to a specific crop. Indirect costs include machinery, irrigation infrastructure, and general production expenses that support multiple crops or production units [11].

The production cost per metric ton can be calculated as follows:

$UC = C_c / Q$

where UC is the unit production cost per metric ton, C_c is the total production cost attributable to the relevant crop, and Q is the total harvested quantity.

The allocation basis should reflect the underlying production process. Machinery costs may be allocated using machine hours, labor-related costs using labor hours, and land-related costs using cultivated area. Allocating all costs solely according to land area may distort the calculated production costs of individual crops (Figure 1).

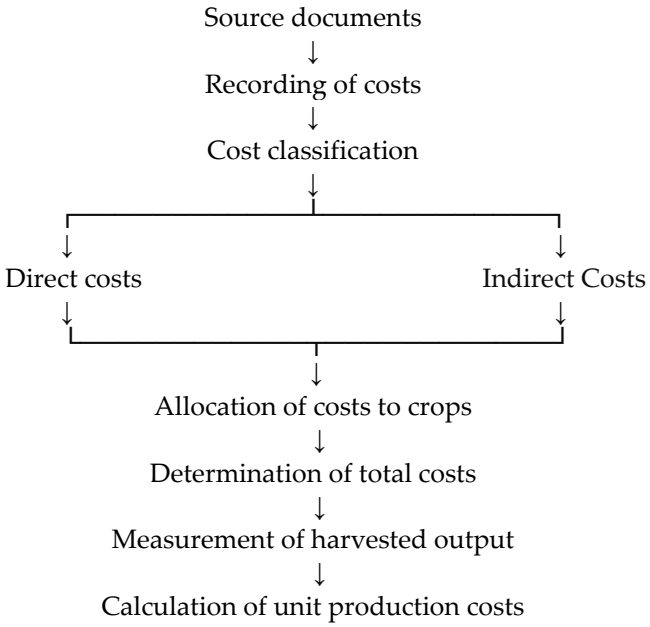


Figure 1. Sequence of Cost Accounting and Product Cost Formation in Vegetable-Growing Farms

Source: Developed by the author.

The practical advantage of this sequence is that it establishes a consistent process from the initial recording of expenditures to the calculation of unit production costs. Accounting policies should also specify how work in progress, successive crop rotations, and crops harvested multiple times are treated when allocating production costs [12].

3.3 Improved Indicators for Income and Expense Analysis

Farm performance should be assessed not only through revenue and total expenditure but also through contribution margin, profitability, labor productivity, and the break-even point.

Contribution margin is the difference between sales revenue and variable costs:

$CM = R - C_v$

where CM is contribution margin, R is sales revenue, and C_v represents variable costs.

In a simplified management accounting model, the operating result after fixed costs is:

$P_i = CM - C_f$

where C_f represents fixed costs. This relationship describes the operating result when other income, financial expenses, and taxes are excluded.

Cost profitability can be calculated as:

RPc=R−CC×100%RP_c=\frac{R-C}{C}\times100\%

This indicator measures the financial return generated per unit of expenditure. For meaningful comparisons, revenue and costs must relate to the same farm activity and reporting period [13].

Table 2. Recommended Indicators for Income and Expense Analysis in Vegetable-Growing Farms

Indicator	Calculation	Analytical purpose
Revenue per hectare	Revenue / cultivated area	Evaluates returns from land resources
Unit production cost	Total production costs / harvested output	Determines the cost of producing a unit of output
Contribution margin	Revenue − variable costs	Indicates the capacity to cover fixed costs
Cost profitability	(Revenue − costs) / costs × 100%	Evaluates the economic return on expenditure
Labor productivity	Harvested output / labor hours	Measures labor efficiency
Post-harvest loss rate	Lost output / total harvested output × 100%	Assesses post-harvest losses
Break-even yield	(Fixed costs per hectare + variable costs per hectare) / selling price per unit	Determines the yield required to cover costs

Source: Developed by the author based on Kay et al. (2016), Horngren et al. (2015), and FAO (2016).

Using these indicators jointly enables a more comprehensive assessment of farm performance. For example, if higher gross revenue is not accompanied by lower unit costs or improved profitability, expansion of production may not generate sufficient economic benefits.

3.4 Conceptual Model for Improving the Accounting System

The findings suggest that improving accounting and analytical practices in vegetable-growing farms should encompass four interconnected areas: reliable collection

of primary data, appropriate cost classification, calculation of financial results, and evidence-based management decisions [14].

Production process (crops, cultivated area, output, labor, and resources)

↓

Accounting information base (source documents, costs, and revenue)

↓

Methodological processing (classification, allocation, and cost calculation)

↓

Economic analysis (profit, profitability, break-even point, and risk analysis)

↓

Management decisions (resource conservation, pricing, storage, and sales)

↓

Economic efficiency.

Figure 2. Conceptual Model for Improving Income and Expense Accounting in Vegetable-Growing Farms

The model also incorporates a feedback mechanism through which the accounting system is reviewed and improved based on analytical findings.

Under this approach, economic analysis identifies inefficient cost components, while the identified weaknesses provide a basis for revising source documentation and cost allocation procedures in subsequent periods.

The following practical recommendations are proposed:

establish separate accounting objects for each crop and crop rotation;

record post-harvest expenses and product losses under separate cost categories;

evaluate family labor differently for financial accounting and management analysis;

introduce break-even analysis based on variable and fixed costs;

develop simplified cost ledgers and crop-level accounting forms for smallholder and household farms;

compare farm-level information with regional and sectoral statistics.

These recommendations aim to improve the accuracy of accounting information and the quality of management decisions. Their economic effects, however, should be tested empirically using actual farm data [15].

4. Conclusion

The findings indicate that improving income and expense accounting in vegetable-growing farms requires an integrated approach that combines the characteristics of agricultural production, accounting requirements, and management analysis techniques.

First, short growing cycles, successive crop rotations, product perishability, seasonal price fluctuations, and the importance of family labor increase the need for crop-level and crop-rotation-based cost accounting.

Second, classifying costs as direct or indirect and as variable or fixed facilitates more accurate product cost calculations and helps assess the effects of changes in production volume on financial performance. The allocation bases should be established in advance within the farm's accounting policies.

Third, income and expense analysis should extend beyond gross revenue to include contribution margin, cost profitability, labor productivity, and break-even yield. These indicators can help identify opportunities to improve production efficiency.

Fourth, international practices concerning agricultural cost statistics, harmonized farm accountancy data, and biological asset accounting can be adapted to national

conditions. Their implementation should reflect the size, organizational structure, and information capabilities of individual farms.

Overall, improving accounting systems in vegetable-growing farms should encompass the entire process, from recording expenditures and calculating production costs to evaluating economic performance and making management decisions. Empirical testing of the proposed approaches using actual farm data represents an important direction for future research.

REFERENCES

[1] Republic of Uzbekistan, "On accounting," Law No. O'RQ-404, Apr. 13, 2016. [Online]. Available: https://lex.uz/uz/acts/-2931253 (accessed Oct. 21, 2026).

[2] President of the Republic of Uzbekistan, "On approval of the Strategy for the Development of Agriculture of the Republic of Uzbekistan for 2020–2030," Decree No. PF-5853, Oct. 23, 2019. [Online]. Available: https://lex.uz/docs/4567334

[3] A. V. Chayanov, *Organizatsiya Krest'yanskogo Khozyaystva* [Organization of the Peasant Farm]. Moscow, Russia, 1925 (in Russian).

[4] R. D. Kay, W. M. Edwards, and P. A. Duffy, *Farm Management*, 7th ed. McGraw-Hill Education, 2016.

[5] C. T. Horngren, S. M. Datar, and M. V. Rajan, *Cost Accounting: A Managerial Emphasis*, 15th ed. Pearson, 2015.

[6] Food and Agriculture Organization of the United Nations, *Handbook on Agricultural Cost of Production Statistics: Guidelines for Data Collection, Compilation and Dissemination*. Rome, Italy: FAO, 2016. [Online]. Available: https://www.fao.org/in-action/global-strategy-agricultural-statistics/resources/Guidelines-Handbooks/en

[7] European Commission, "Farm Accountancy Data Network (FADN)." [Online]. Available: https://agriculture.ec.europa.eu/data-and-analysis/farm-structures-and-economics/fadn_en (accessed Oct. 21, 2026).

[8] International Accounting Standards Board, "IAS 41 Agriculture," IFRS Foundation. [Online]. Available: https://www.ifrs.org/issued-standards/list-of-standards/ias-41-agriculture/ (accessed Oct. 21, 2026).

[9] Statistics Agency under the President of the Republic of Uzbekistan, "Official statistics." [Online]. Available: https://stat.uz/ (accessed Oct. 21, 2026).

[10] F. Ellis, *Peasant Economics: Farm Households and Agrarian Development*, 2nd ed. Cambridge, U.K.: Cambridge Univ. Press, 1993.

[11] R. Cooper and R. S. Kaplan, "Measure costs right: Make the right decisions," *Harvard Bus. Rev.*, vol. 66, no. 5, pp. 96–103, Sep.–Oct. 1988.

[12] R. S. Kaplan and S. R. Anderson, "Time-driven activity-based costing," *Harvard Bus. Rev.*, vol. 82, no. 11, pp. 131–138, Nov. 2004.

[13] C. Elad, "Fair value accounting in the agricultural sector: Some implications for international accounting harmonization," *Eur. Account. Rev.*, vol. 13, no. 4, pp. 621–641, 2004, doi: 10.1080/0963818042000216839.

[14] R. J. Hodges, J. C. Buzby, and B. Bennett, "Postharvest losses and waste in developed and less developed countries: Opportunities to improve resource use," *J. Agric. Sci.*, vol. 149, no. S1, pp. 37–45, 2011, doi: 10.1017/S0021859610000936.

[15] C. L. Gilbert and C. W. Morgan, "Food price volatility," *Philos. Trans. Roy. Soc. B, Biol. Sci.*, vol. 365, no. 1554, pp. 3023–3034, 2010, doi: 10.1098/rstb.2010.0139.