

## MAIN AREAS OF IMPROVEMENT IN LOSSES ACCOUNTING AND COST CALCULATION IN AGRICULTURAL PRODUCTION

Oksana V. Moshchenko<sup>1</sup>

Viktoriya A. Matveeva<sup>2</sup>

Violetta V. Rokotyanskaya<sup>3</sup>

Svetlana A. Maryanova<sup>4</sup>

Svetlana V. Romanova<sup>5</sup>

**Abstract:** The article argues for the application of product cost calculation by the "direct-costing" model as an improvement in the management accounting system in agricultural enterprises. The authors categorized the costs of agricultural production based on its relation to the production output into variable, semi-variable and fixed costs. The methodology of transfer pricing has also been developed, as a tool for assessing the effectiveness and determining the final result (profit and loss) of each responsibility center. A gradual construction of cost accounting,

output and financial results has been suggested. Therefore, in order to implement the accounting system proposed in the article and to increase its controlling functions, the authors developed an analytical accounting register or a production report form, where financial results should be identified at the production stage and at the level of the organizational units. The article is not only scientific, but also practice-oriented, thus the outcomes will be useful not only for students, graduate students and teachers of economic

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<sup>1</sup>Candidate of Economic Sciences, Associate professor, Financial University under the Government of the Russian Federation, Leningradsky prospect, 49, 125993, Moscow, Russia; E-mail: [skorpion27101980@mail.ru](mailto:skorpion27101980@mail.ru)

<sup>2</sup>Candidate of Economic Sciences, Associate professor, Don State Technical University, Gagarin lane 1, 344010, Rostov-on-Don, Russia; E-mail: [pav778@rambler.ru](mailto:pav778@rambler.ru)

<sup>3</sup>Candidate of Economic Sciences, Associate professor, Russian State Agrarian University named after K.A. Timiryazev, Timiryazevskaya street, 49, 127550, Moscow, Russia; E-mail: [rokotyanskay\\_v\\_v@mail.ru](mailto:rokotyanskay_v_v@mail.ru)

<sup>4</sup>Candidate of Economic Sciences, Associate professor, Don State Technical University, Gagarin lane 1, 344010, Rostov-on-Don, Russia; E-mail: [msa0209@mail.ru](mailto:msa0209@mail.ru)

<sup>5</sup>Candidate of Economic Sciences, Associate professor, Don State Technical University, Gagarin lane 1, 344010, Rostov-on-Don, Russia; E-mail: [romanova-sv@yandex.ru](mailto:romanova-sv@yandex.ru)

subjects, but also for practicing accountants and managers.

**Keywords:** "direct-costing" method, management accounting, cost accounting, marginal profit, agriculture, responsibility center.

## 1. Introduction

Under the conditions of market economy, the new methodological guidelines for accounting should be developed in Russian agricultural organizations in an effort to meet international accounting standards. Compared to other industries, agricultural production has some peculiarities that affect accounting, planning and costing processes [6].

The financial results of agricultural production significantly depend on the sustainable use of material, labor and financial resources [1]. Therefore, the scientifically based organization of accounting and production process accounting based on the management model of "costs - volume - results" is of great importance. In our opinion, the accounting must address better the information needs of operational and strategic production

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management, as well as the requirements of internal control.

The methods of cost accounting should also meet the requirements of economic analysis and determine the patterns of change in costs, output, and financial results of the organization and its divisions.

## 2. Methods

The studies of Russian and foreign scientists on the theory and methodology of financial and management accounting, analysis and control; legislative and normative acts regulating the costs accounting and calculation in agricultural production became the methodological and theoretical basis for our work. The following methods were used during our study: basic accounting methods; analysis, synthesis, abstract-logical, monographic, methods of systematization and generalization of research results.

## 3. Results

### 3.1 Organization of financial responsibility centers in agricultural enterprises

At present, Russian agricultural enterprises commonly use only the per-order method of all existing cost accounting methods. This method meets the requirements of centralized planning, which characterized the totalitarian command economy. In the market economy conditions, agricultural organizations received complete independence in productive activities and full responsibility for their productivity (works, services). Therefore, these organizations develop a system of economic methods of production management, which requires the creation of an appropriate, reliable and adequate information base.

This implies the increased use of cost accounting methods, i.e. application of more progressive methods, such as process, phase-by-phase and standard costing methods. At the same time, each organization must take into account the qualification level of their accounting staff and technical equipment at their disposal.

Not only agricultural crops (groups of crops), farm animals (groups of animals), but also technological processes, redistribution and production phases should become accounting

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objects when using these methods of production accounting.

The effectiveness of production accounting can be significantly increased if the proposed accounting methods are used in combination with the standard costing method. Costs accounting is now multidimensional, but we can distinguish two main approaches in its development. The first approach is aimed at improving the costing and control of costs for each separate type of finished products (works, services). It is characterized by the classification of all costs into direct and indirect costs, and the practical implementation of this approach is targeted at full cost calculation.

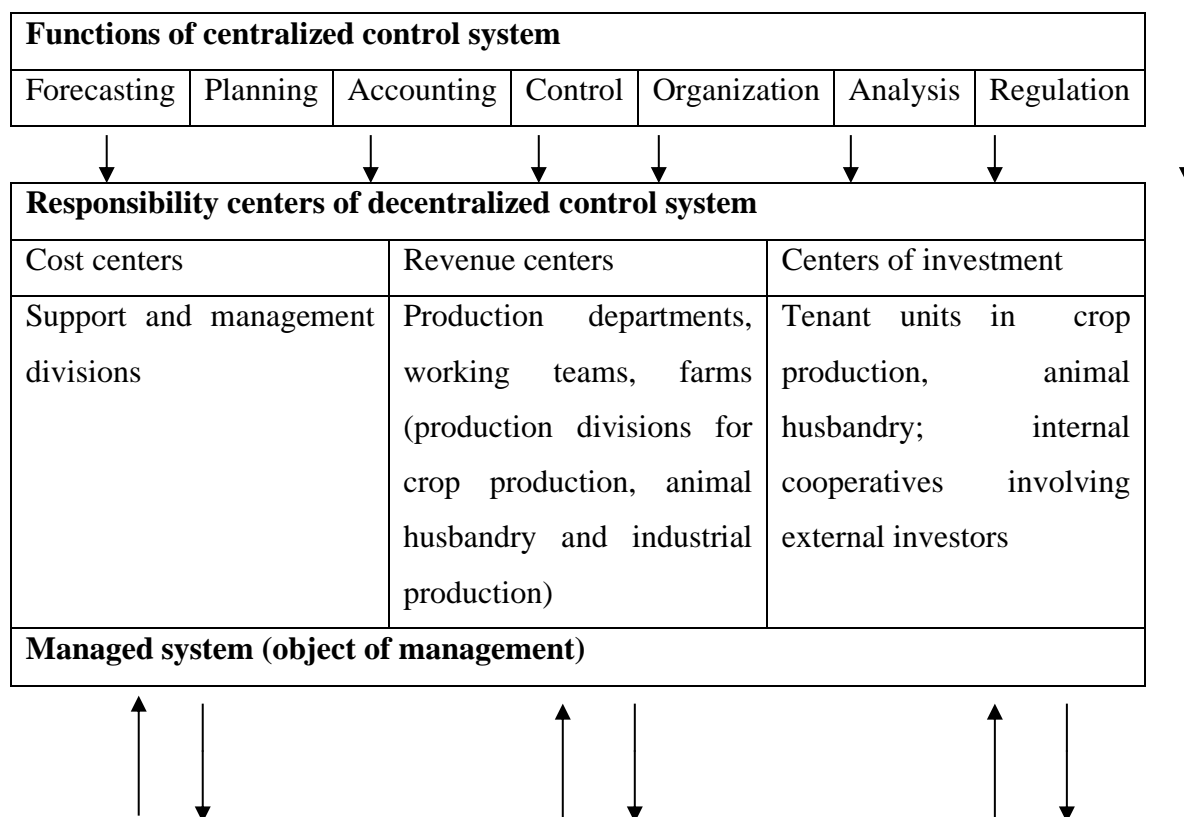
The second approach implies the improvement of administrative decision-making, its compliance with changes in market conditions and other external factors. The relevant accounting system emphasizes costs dependence on changes in the volume and structure of the finished products, which gives relevance to the classification of costs into direct and indirect. If the first approach is product-oriented, the second one is market-oriented. The first approach is based on the traditional

system of manufacturing accounting, the second approach is based on the "direct-costing" system. One of the advantages of the marginal costing is its flexibility and ease of use in case of short-term settlements typical for enterprises vulnerable to the risks posed by market fluctuations. The above-mentioned system of calculation will allow to generate the most essential information for administrative and management personnel with the purpose of adoption of a specific decision [2].

In order to increase the efficiency of agricultural production, improve the financial performance of

agricultural organizations, a restructuring of economic entities and the creation of financial responsibility centers: cost centers; revenue centers; centers of investment, - would be needed [5].

These centers can operate effectively based on the principles of self-control, self-financing, self-government, and self-support [3, P.27]. Therefore, there is an objective need for a wider use of economic methods of management and decentralization of some of its functions, including management accounting for the "cost-output-benefit" model (Figure 1.).



**Decentralized management accounting, control and analysis of responsibility centers operation**

**Fig. 1.** Model of the responsibility centers organization, management accounting, control and analysis of their activities under the "cost-output-benefit" scheme  
 ———→ - forward linkage    — — → - backward linkage

Practical implementation of this model allows to take into account, analyze and control the production volume, its cost and financial results directly by units (responsibility centers) in an operative manner. To do this, it is necessary to change the system of the production management cost accounting, the methods of economic valuation of different products (works, services) of the responsibility centers and assessing their performance.

### 3.2. Classification of cost accounting in management and financial accounting

One of the most important aspects of improving cost accounting is the correct classification of costs by items in management accounting and by elements in financial accounting.

In order to optimize the management costs accounting and evaluation of the financial results of the responsibility centers, the costs of agricultural organizations must be

grouped depending on the production output into variable, semi-variable and fixed costs. Besides, methodology should be developed for transfer pricing as a tool for assessing the effectiveness of activities and determining the final result (profit and loss) of each responsibility center [8, P.30].

At the same time, the transfer price should be higher than the variable (department) production costs and below the market selling price:

$$P_t = P_p \times (S_{sv} / 100), \quad (1)$$

where  $P_t$  is the transfer price of 1 centner (hundred kilograms) of product in RUR;

$S_{sv}$  is the share of variable and semi-variable costs in the cost structure for 1 centner (hundred kilograms) of product in RUR;

$P_p$  is the market price of 1 centner (hundred kilograms) of product in RUR.

In this case, we propose to maintain management (production) cost accounting of responsibility centers by cost items categorized by the following areas (see Table 1).

**Table 1.** Cost accounting items and elements by responsibility centers and across the organization

<b>Nº</b>	<b>Elements and items of cost accounting</b>	<b>In financial accounting</b>	<b>In management accounting</b>
1.	Compensation of employees including: a) regular staff remuneration b) contract labor expense c) wages in kind	+ - - -	- + + +
2.	Crop and animal protection agents	+	+
3.	Feed and fertilizers	+	+
4.	Raw materials for industrial production	+	+
5.	Works and services, including: a) fleet vehicles b) agricultural equipment and tractor park c) animal-drawn transport d) water supply e) gas supply f) heat- and cold supply	+ - - - - -	- + + + + +
6.	Maintenance of fixed assets including: a) repair and maintenance cost b) depreciation, rent and lease payments	+ - -	- + +
7.	Other expenses	+	+
8.	Farm, working team or department expenses	+	+
9.	Sectorwide expenses	+	-
10.	General expenses	+	-
11.	Insurance payments and financial costs	+	-

12.	Sales expenditures	+	-
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«+»- accounted for; «-»- not accounted for

The cost items in lines 1 to 9 form a working team (department, farm) cost. The composition of this type of cost includes variable, semi-variable and fixed costs. This classification of cost accounting allows to promptly control expenses, to determine factors and magnitude of their impact on the marginal profit and revenue of a structural unit.

Thus, the margin profit of a responsibility center is found as follows:

$$\text{MPf} = \text{GPf} - \text{VCf} - \text{SVCf} \quad (2)$$

The revenue of a unit is calculated using the following formula:

$$\Pi\phi = \text{MPf} - \text{FCfb}, \quad (3)$$

where MPf - is the real marginal revenue of a unit in RUR;

GPf - is global production of a unit at transfer prices, RUR;

VCf and SVCf – variable and semi-variable actual costs of a unit, respectively, RUR.;

FCfb - fixed costs.

The above aspects of cost accounting and methodology for calculating transfer prices, allow to

monitor and analyze the costs, marginal revenue and profit of unit in relation to the production budget of this responsibility center.

#### 4. Results

Systematization of indicators of the enterprise's business operations is required to ensure the operational management and control of economic activities. Such data could be found in the accounts of an enterprise. Currently, all the production accounts provide for a two-tier structure: control accounts; sub-account. In accordance with the Methodological Recommendations of the Ministry of Agriculture of the Russian Federation (2003), enterprises and organizations have also analytical accounts, and keep accounting records of costs and outcome of agricultural products, constituting the third stage in the structure of accounts. The volume of information was the basic criterion for this structure. However, the three-step structure of production (operating) accounts for the purposes of accounting in agricultural production is not enough.



Agricultural production is multisectoral and sub-sectoral in nature [3].

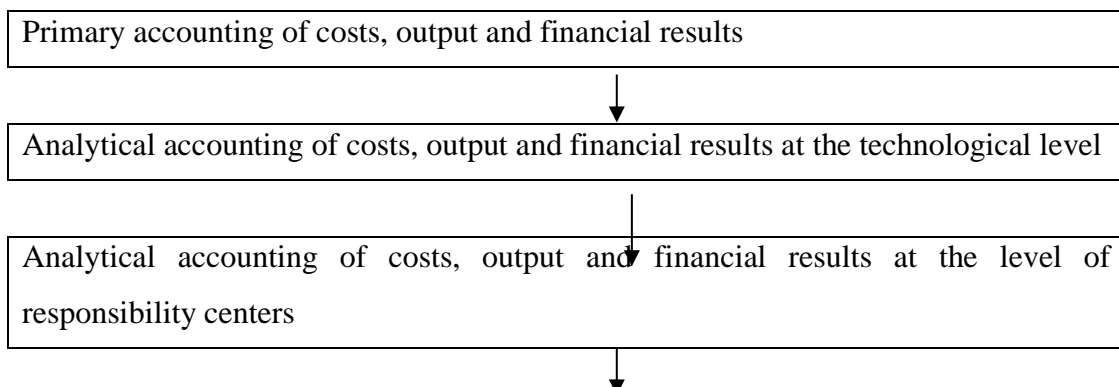
Each of these sectors has a number of sub-sectors, are singled out as independent industries (fodder production, vegetable growing, sheep breeding, pig production, etc.) in specialized farms.

Therefore, to get detailed information for the purpose of monitoring costs and managing the efficiency of production of various sectors and sub-sectors, as well as to classify correctly the above information on analytical accounts, there is an objective need for ranking accounts within the corresponding sub-account, and for distinguishing internal sub-accounts of both second and third order. At the same time, every account will have an eight-digit code. For example, the account "Main Production" will have a code of 20 01 02 03. The first two digits

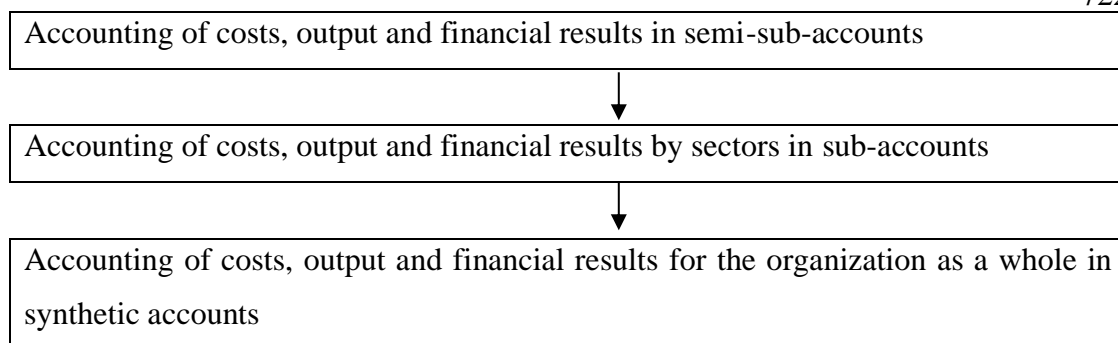
denote a synthetic account (of the first order), the second two digits - the subaccount (second order), the third ones - the semi-sub-account (the third order), the fourth ones - the analytical account (fourth order).

At the same time, the information of account 20 and its sub-accounts will be used in financial accounting, and the information of semi-subaccounts and analytical accounts of this synthetic account will be used in management accounting of production costs for decision-making purposes.

Similarly, the structure of accounts 43 "Finished products", 90 "Sales" and others can be built. At the same time, accounting of costs, output and financial results in the agricultural production management system is carried out according to a pyramidal (multi-step) scheme (Figure 2).







**Fig. 2.** Stepwise construction of cost, output and financial results accounting

The above scheme of the stepwise accounting of costs, output and financial results during its practical implementation will significantly increase the analytical and control functions of accounting, the communicability of its information in the system of production and financial management of the organization [4].

In order to implement this accounting system and improve its controlling functions, it is also necessary to develop an analytical accounting register or a production report form, where financial results should be identified at the production stage and at the level of the organizational units (Table 2).

**Table 2.** Fragment of the production report of a self-supporting unit

1. Production costs (sales expenditures) by objects of accounting (debit of account 20 or account 90)

	Cost items	Objects of cost accounting, thousand rubles.									Total actual expenditure, thousand rubles.		Corresponding account
		A			B			Etc.			Since the start of the year	During the period under review	
		standard	variance (+;-)	actl	standard	variance (+;-)	actl	standard	variance (+;-)	actl			
1	2	3	4	5	6	7	8	9	10	11	12		
1.	labor	12	+1	13	25	-2	23	-	-	-	56	49	70
2.	depreciation	6	-	6	6	-	6	-	-	-	35	18	02

3.	Etc..										
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2. Output or sale of products and their cost (credit of account 20 or debit of account 90)

	Product	Product quantity, hundred kilograms			Production cost, rubles.			Corresponding account
		standard	variance (+;-)	actl	standard	variance (+;-)	actl	
1	2	3	4	5	6	7	8	9
1.	Potatoes	1270	+120	1390	4500	+300	4800	43
2.	Field vegetables	200	-7	193	7000	-20	6980	43
3.	Etc.							

3. Analysis of cost recovery and financial results of a unit

	Indicator	Product								
		A			B			C		
		standard	variance (+;-)	actl	standard	variance (+;-)	actl	standard	vaiance (+;-)	actl
1	2	3	4	5	6	7	8	9	10	11
1	Global production, thousand rubles.	1300	+178	1478	678	-75	603	67	-9	58
2	Marginal revenue, thousand rubles.	780	-80	700	670	+100	770	100	-	100
3	Profit, thousand rubles.	520	198	778	78	-25	-167	-33	-9	158

Thus, the financial cost accounting based on this scheme should hold records of cost elements, and the management cost accounting - for cost items [8].

5. Conclusion

Our study on the organization of modern cost accounting and production cost calculating in Russian agricultural enterprises have revealed a number of problems. The complex market processes imply the complexity of an individual producer's orientation

and affect the fluctuations in the volume of production and sales, on the one hand, and the increase of fixed costs share, on the other hand, have a significant effect on production cost, and thus, on the profits [7, 9, 10]. Therefore, the rapid reforms of domestic methods of calculating the cost of agricultural products.

Valuable management information obtained as a result of applying the method of calculating agricultural products on the basis of "direct-costing" model will facilitate the rapid recording, control and analysis of the agricultural production costs.

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