

RESEARCH ARTICLE



Issues of Improving Expense Tracking and Calculating Prime Cost in Agriculture

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*** Corresponding authors.**gafuribragimov@mail.rugulchiroytursungulova@gmail.com**Funding:** None**Competing Interests:** None

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Abdugapur Karimovich Ibragimov^{1*}, Tursunkulova Gulchiroy^{2*}, Bruno Antonio Pansera³

1 Department of Accounting and Audit, The Banking and Finance Academy of the Republic of Uzbekistan, Ulugbek district, Tashkent, Uzbekistan

2 Department of Accounting and Audit, Tashkent State Agrarian University of the Republic of Uzbekistan, Tashkent, Uzbekistan

3 Department of Law, Economics and Human Sciences & Decisions Lab, University Mediterranea of Reggio Calabria, Cittadella Universitaria Complesso Torri - Seconda Torre - Reggio Calabria (RC), Italy

Abstract

Objectives: This article is devoted to the consideration of the issues of cost accounting and cost calculation in agriculture. In addition, the article highlights the issues of the correct distribution of costs by cost items and objects, as well as the correct calculation of the cost of Uzbekistan's products. In addition, Uzbekistan is an agrarian country, so the article presents suggestions and recommendations for improving the accounting of costs and production costs in agriculture. Previous studies in this area conducted in other parts of the world indicate a direct relationship between the indicators of production costs and market indicators; however, based on the features of Uzbekistan, it may be different, given the accounting policy and the specifics of agricultural costs. **Methods:** A linear regression method to determine the impact of costs and methods of calculating the cost of production was used. Costs are divided into variables and constants. Based on the features of agriculture, simple, advanced, and regulatory methods are used. Each of these methods is associated with variables and regresses individually for each type of agricultural product. **Findings:** Our results confirm that there are some methods of calculating the cost of production of farms. The results also indicate that the correct determination of the cost of production affects the profitability of these farms. The results obtained indicate that the calculation of the cost of agriculture is an indicator of the profitability of farms in Uzbekistan in the short term. The impact of the change in the cost of agricultural products influences profitability, in the end on profit; as it influences the prices of sales of products in the end affect the financial performance of farms. **Novelty:** The impact of the cost of agricultural products on the profitability of farms is becoming more important than ever before since the negative externalities of cost changes affect the financial performance of farms.

Keywords: Farms; Expenses; Cost; Product cost; Accounting register

1 Introduction

Currently, the agricultural production growth in the world fails to keep pace with the growth of population and needs, which causes the fact that problem of food security becomes more topical year by year. According to the data of the UN Food and Agriculture Organization (FAO), “Over 1 billion people out of 7.3 billion people from nearly 100 countries suffer from the shortage of food. Due to climate change, drought, and other natural disasters, this figure may reach 25 percent of the world’s population in the next decade”⁽¹⁾. Ensuring food security, increasing the production of agricultural products, and reducing their prime cost are considered crucially important issues.

It should be noted that throughout the world particular attention is paid to research on expense tracking and prime-cost calculating in agriculture. Researches are conducted on such priority areas as clarification of analytical accounting items and objects of expenses of production costs in agriculture, use of analytical accounts in expense tracking in industry enterprises, formation of the system of calculation units and objects of product prime-cost calculation, scientific validation of the methods of calculating the prime-cost of agricultural products, accurate calculation of the prime-cost in farms specializing in agriculture, organization of expense tracking and prime-cost of the product based on the requirements of international standards.

The reforms implemented in Uzbekistan to raise the production of agricultural products, increase the export potential, and reduce the prime-cost are aimed at the implementation of such tasks as promoting the creation of the added value chain in the fruit and vegetable sector, to ensure the stability of the production and export of quality vegetable products⁽²⁾, as well as reduction of expenses and prime-costs, localization and level of profitability, increase of product competitiveness⁽³⁾. These issues require comprehensive research and improvement of the existing theoretical and methodological foundations of expense tracking and calculating prime-cost in agriculture.

Accurate and timely accounting of product costs and production volume, and cost calculation should play a significant role in fulfilling the tasks of calculating products assigned to the agricultural sector of Uzbekistan. The proper organization of accounting of expenses in agriculture is great of importance in the world since it affects the income and costs of farms.

Agriculture is a very specific branch of agricultural production. The seasonal nature of production, including the gap between production costs and the period of output of the product, makes a significant impact on the circulation of funds in agriculture. Production costs in the field of agriculture are made over a long period of time and are of a very uneven nature, the reimbursement of funds, i.e. output of the product occurs at the time determined by the natural conditions of plant ripening. All these peculiarities definitely cannot be ignored in organizing expense tracking in this area⁽⁴⁾.

Due to the fact that the production process in agriculture lasts for many months and the expenses correspond to the harvest of two consecutive years, the accounting should impose precise limits on expenses by year. Therefore, agricultural expenses of agricultural enterprises are divided into two parts in accounting: expenses for the current year and expenses for next year’s harvest.

In addition, expenses in agriculture are often incurred in the cultivation of specific crops in some industries and this fact also should be clearly recorded in the accounting. Therefore, the analytical calculation of production costs is organized according to the types of production and the trend of related crops.

Agricultural production is not the process going on at the same time. The production process consists of different types of work performed in different seasons of the year (autumn, winter, spring, summer). The technological process of agricultural production includes the following complex core business: preparation of the soil for planting, sowing, tending plants, and harvesting. Each of these complexes consists of a large number of precise activities, such as preparing the soil for planting, plowing, harrowing, crushing, and watering the plants. Therefore, in accounting the expenses should be limited according to the types of work performed⁽⁵⁾.

To organize accounting in agriculture, it is necessary to develop an accounting policy for an economic entity. Accounting policy is understood as a set of methods adopted by the head of an economic entity for accounting and financial reporting in accordance with their principles. However, in agriculture, accounting policy has not developed issues and methods for grouping and evaluating the facts of economic activity. Therefore, it is necessary to develop, on the basis of accounting policy, cost estimates, methods of applying accounting accounts, and other appropriate methods, techniques, and methods. The accounting policy is formed by the head of the entity on the basis of this National Accounting Standard in order for the financial performance of the business entity presented in the financial statements for different years to be comparable. Therefore, in accounting expenses incurred in agriculture should be limited by the types of work performed. Objects of expenses in farm entities are divided as follows:

- by crop or crop groups;
- works in agriculture;
- apportioned costs;
- other expenses.

In all cases where expenses can be directly transferred to the crop of the current year, they are recorded in the accounts of the first group of expense tracking objects. The second group of expense-tracking objects reflects the expenses of agricultural work for the next year's harvest, which, definitely, cannot be transferred to the expense-tracking objects of crops harvested in the current year. As part of the third group of objects, expenses that are transferred to several or many objects of the accounting, namely, distributed to them (current maintenance, irrigation, and drying costs, etc.) are taken into account. Expenses on feed production and some other expenses are considered in the fourth group of accounting objects.

Considering the significance of agricultural products, the volume of cultivation, and the specialization of farms, it is required to determine the objects of accounting for crops. A separate analytical account is opened for each of the above-mentioned items of agricultural expenses, in which the relevant expenses are accounted for in compliance with the established nomenclature of items.

The expenses that constitute the production prime-cost of the product (works, services) are divided into groups according to their economic essence with the following elements:

- production tangible costs (excluding the cost of repeated throw-outs);
- labour costs of a production nature;
- contributions to social insurance related to production;
- depreciation of fixed assets and intangible assets of production value;
- other expenses of production significance⁽⁶⁾.

The agricultural production process consists of different types of work performed in different seasons of the year (autumn, winter, spring, and summer). The technological process of agricultural production consists of the following main activities: preparing the soil for planting, sowing, tending to plants, and harvesting. Each of these complexes consists of a large number of specific operations, such as preparing the soil for planting, plowing, harrowing, harrowing, cultivating, and the like. Therefore, in accounting the expenses should be limited according to the types of work performed.

In the agricultural production process, various expenses are incurred in the performance of specific works: oil products, seeds, fertilizers are consumed, machines and other main facilities of production are partially worn out, wages are paid for the labour of production workers, etc. All such expenses must be collected separately in the account. Therefore, the accounting of farming expenses should be done by items of expenses, not by the total amount in the management accounting.

In accounting, expenses incurred in agriculture affect the calculation of cost. Therefore, the technological processes of agricultural production: soil preparation for planting, sowing, plant care, harvesting, and others. Since these procedures affect the calculation of the actual cost of agriculture, when calculating the cost based on these methods, mitigate the cost calculation, while using a simple, complex, and normative method of calculating costs. As a result, these methods eliminate deviations from the actual cost of production.

2 Methodology

Therefore, with the aim of ensuring the system of details necessary for the accounting objects of the accurate organization of the expense tracking, the elements of expenses for the analytical accounting of the expenses of “Farming” are grouped according to the following accounting items:

1. Material expenses include: chemical and biological fertilizers; seeds and seedlings; means of protection against pests; fuel lubricants; works and services;
2. Labor payment expenses;
3. Social taxes;
4. Maintenance costs of fixed assets;
5. Insurance costs;
6. Costs due to the organization of production;
7. Other expenses

Such expense items are often implemented in the cultivation of specific crops in some productions and should be recorded in accounting. Therefore, analytical accounting of production costs is organized according to the types of production and tending of related plants⁽⁶⁾.

Analytical accounting of structural divisions of farming is opened for production objects and established nomenclature of calculations. Often, farm production reports are not properly maintained and do not always contain complete and accurate information, namely, not all details are filled in. Such incomplete data cannot provide a comprehensive analysis at the adequate level. Therefore, analytical accounting is required at farm entities.

Article 8 of the Law of the Republic of Uzbekistan “On Accounting” states that “analytical accounting is performed according to the procedure determined independently by the subject of accounting in order to formulate detailed accounting data about accounting objects”⁽⁷⁾.

Production costs in the farms, including organization of accounting in the manufacturing of products, and aimed at meeting the requirements of internal users for the necessary information. The proposed accounts are used for keeping separate analytical accounts in the farming area:

- 20101 - Cotton cultivation;
- 20102 — Grain-growing;
- 20103 — Fruit growing (horticulture);
- 20104 - Vegetable farming;
- 20105 — Growing house (by types);
- 20106 - Storage in refrigerators.

These analytical accounts enable to organize accounts, generate analytical data, digitize the process of accounting for production costs, as well as provide users with timely, accurate, and reliable information⁽⁸⁾.

3 Results and Discussion

Nowadays, the calculation of the prime cost in agriculture, especially the prime cost of farming products is not paid sufficient attention. The accuracy of the information about the expenses incurred for the production of the product and their reliability for the performance of various management issues are of great importance in prime-cost calculation. In this regard, reasonable selection of the object of expenses and expense units in calculating the prime cost of vegetable products is an essential methodological issue. Therefore, planning of production costs, accounting, and prime cost objects, as well as prime-cost units are presented⁽⁹⁾.

The accuracy of information on the prime-cost of agricultural products is important for solving management issues (planning, regulation, determination of reserves, pricing, performance evaluation, etc.). In addition, prime-cost objects and prime-cost units improve the methodological support of planning, accounting, current control, and analysis of production costs⁽¹⁰⁾.

To determine the prime-cost of products in agriculture, it is recommended to use one of the following methods: simple method, distribution coefficient method, proportional method, normative method, mixed method, and exclusion method. Applying these methods, it is possible to more accurately calculate the prime cost of 1 center of products.

Franco delivery expenses are taken into account when calculating the prime cost of products. Therefore, the expenses of delivering the product to consumers (processing entity, farmer’s market, if the farm supplies, children’s institutions, etc.) are not included in the prime cost of vegetable-growing products.

The main products in horticulture are fruits, berries, and citrus fruits. The garden area is not very large and mainly one type of fruit is grown in small fruit and vegetable farms. Therefore, the prime cost of one center of horticultural products in these farms is calculated as a whole⁽¹¹⁾.

In this case, all expenses are divided by the total amount of products received (without dividing them into types). Special accounting operations are required in specialized farm entities. Calculation of the prime cost of horticultural products is given in Table 1.

Table 1. Calculation of the prime-cost of intensive horticulture products by the distribution ratio method

Products	Production received, centner	Price for 1 centner of product, UZS	Value at market price, UZS	Distribution ratio	Expenses, UZS	Prime-cost of 1 centner of production, UZS
Apple	180	1 100 000	198 000 000	0,7651	151 489 800	841 610
Pear	20	1 000 000	20 000 000	0,7651	15 302 000	765 100
Plum	22	900 000	19 800 000	0,7651	15 148 980	688 590
Peach	20	1 000 000	20 000 000	0,7651	15 302 000	765 100
Apricot	15	400 000	6 000 000	0,7651	4 590 600	306 040
Total	X	X	263 800 000	0,7651	201 833 380	-

Source: This information was accounted for based on the indicator of Leogarden farming of the Tashkent region.

When calculating the prime-cost of vegetable products, it is appropriate to calculate expenses spent on the additional production using the exclusion method as shown in Table 2 below.

Table 2. Method for calculating the prime-cost of vegetable products, 1 ha

Product Type	Amount centner	Market price for a center, UZS	Value at market price, UZS	Share,%	Total expenses, UZS	Actual prime-cost for 1 centner 1
Onion	300	100 000	30 000 000	31,4	22 800 000	76 000
Carrot	250	70 000	17 500 000	18,3	13 750 000	55 000
Garlic	100	480 000	48 000 000	50,3	37 000 000	370 000
Total:	x		95 500 000	100	73 550 000	X
Stem and leaves	25		x	x	95 000	3 800
Total:	x		x	x	73 645 000	X

Source: This information was accounted for based on the indicator of Leogarden farming of the Tashkent region.

The prime-cost calculation method is as follows. The relative contribution of onion value to total revenue from sales of vegetables accounts for 31,4 % = (30 000 000*100 / 95 500 000).

The root vegetable is considered the object of prime-cost accounting. If vegetable stems and leaves are used in farming, their preparation should be accounted for in a separate analytical account known as "Collecting stems and stacking".

When importing vegetable products, they are divided into products intended for export and sale to the domestic market, which later provides the information required for calculating the prime-cost of each group of these products separately.

We consider, in order to separately calculate the prime-cost of products intended for export and sale to the domestic market, it is appropriate to distribute the expenses related to the main product to these product groups in proportion to their market price. Therefore, the farmer should look for opportunities to raise the share of exportable products and to further increase the selling price⁽⁹⁾.

In farms, the prime-cost of growing tomatoes is calculated when it is accounted for. When making calculations for tomatoes, the exclusion method of costs for by-products (secondary products) is used (Table 3).

Table 3. The exclusion method for calculating expenses on by-products of calculating the prime-cost of tomato product, 1 ha

Products type	Amount, centner	Price for 1 centner, UZS	Value at market price, UZS	Share, %	Total expenses, UZS	Prime-cost of 1 centner of product, UZS
Tomatoes for export	200	394 000	78 800 000	80	20 000 000	100 000

Continued on next page

Table 3 continued

Tomatoes intended for the domestic market	50	120 000	6 000 000	20	5000 000	100 000
Total:	250	x	84 800 000	100	25 000 000	X
Damaged and battered product	10	x	X	x	600 000	60 000
Leaf and stem	5	x	X	x	250 000	50 000
Total:	x	x	X	x	25 850 000	X

Source: This information was accounted for based on the indicator of Muhitdinov farming in Tashkent region.

Tomato is the main product. Its by-products are its stems and leaves. In case they are gathered, they will be valued at the actual expenses of gathering. To calculate the actual prime-cost of tomatoes, the expenses of using the stems and leaves on the farm are deducted from the total expenses of growing and harvesting tomatoes. The prime-cost of 1 center of tomatoes is determined by dividing the result by the mass of products. If all produced tomatoes are sorted, it is necessary to calculate the prime-cost of tomatoes intended for export and sale to the domestic market. Expenses made on tomatoes are distributed between tomatoes for export and domestic market in proportion to their market value⁽¹²⁾.

It should be noted that outdoor and indoor vegetable farming differs from an organizational and technological point of view, requiring the use of various methods for calculating their prime-cost.

Therefore, calculating the prime-cost of vegetable products grown in closed areas (indoors) has its own peculiarities. Indoor vegetable production is mainly done in greenhouses and hothouses. Such structures are more common in the regions around large cities. The expenses of growing vegetable products in the closed area are separate for the types of facilities in specialized farms (winter greenhouses, spring greenhouses covered with glass or transparent film, small-scale areas covered with film, heated fields, hydroponics) and for each crop in them, and for each facility in non-specialized farms are accounted for. In compliance with the current regulations, expenses reflected in the types of structures (winter, spring greenhouses, greenhouses, etc.) have been accepted as the object of expense calculation in indoor vegetable growing. Since such expenses are taken into account for the entire structure, and different products are grown in each greenhouse, it is necessary to distribute expenses for their cultivation to the types of products. Such distribution is made in proportion to the fixed base⁽¹¹⁾.

When calculating the prime-cost of products grown in hydroponics and other last-generation advanced greenhouses, it is necessary to distribute expenses between crop types in proportion to meter-days. In this case, the area occupied by this crop in the greenhouse is multiplied by its vegetation period (the number of cultivated days). This information is obtained from the vegetation log kept for each facility. Products obtained from greenhouses are divided into products intended for export and domestic consumption and then are entered in the books. If there are products intended for sale on the domestic market, expenses are made between these quality groups (in order to calculate their prime-cost separately) in the generally established order, that is, in proportion to the value determined by the market price of the products⁽¹⁰⁾.

We confirm our opinion on the basis of the data on the farm on the calculation of the prime-cost of products grown in a spring greenhouse, these data are presented in Table 4.

Table 4. Calculating the prime-cost of the product grown in the greenhouse by the proportional method

Crop types/ Indicators	Cucumber	Tomato	Total
Land plot, m ²	1000	1000	2000
Vegetation period, days	90	100	X
Square-meter days	90 000	100 000	190000
Total direct costs	8 700 000	10 800 000	19 500 000
Seedling	3 300 000	4 200 000	7 500 000
Membrane	2 400 000	3000 000	5 400 000
Mineral fertilizer	1400 000	2000 000	3 400 000
Wages	1600 000	1600 000	3 200 000
Indirect (distributable) expenses	19 152 500	21 168 090	40 320 590
Hot water supply	18 000 000	20 000 000	38 000 000
Tax for use of water resources	1 004 500	1 000 090	2 004 590
Electric energy	148 000	168 000	316 000
Prime-cost for 1 m ² , UZS	-	-	20 160,3
Total expenses, UZS	27 852 500	31 968 090	59 820 590

Continued on next page

Table 4 continued

Received product, kg	7500	9500	X
Prime-cost of 1 kg product, UZS	3 714	3 365	X

Source: This information was accounted for based on the indicator of Fayz farming in Tashkent region.

Accounting registers are used for sectors related to the industry with the account of t items of expenses in agriculture. Data from the accounting registers are used to monitor compliance with expense limits and to create an analytical and synthetic accounting for the entire farm. In the accounting registers expenses are reflected every month by-products (groups) and relevant expense items for a month and a year, and in ascending order from the beginning of the year. In the accounting registers expenses are reflected in an increasing order during the year according to the relevant expense items. In addition, at the end of the year, expenses are brought to a single system on the corresponding accounts.

During the month all operations by correspondent accounts of credit of account 2011 “Farming” are brought into one system, and all data are transferred from the register to 10-ASK journal-order. During the year, the products obtained from vegetable growing are evaluated according to the plan cost, and 2811 — “Farming products in warehouse” account is debited from the credit of 2011 — “Farming” account. If it is known that the product will be used as seed or fodder at the time of receipt, an analytical account for seeds (for example, “seed”) for the type of plant belonging to account 1010 — “Raw materials and consumables” is opened and accepted directly from the credit of account 2011 — “Farming”. At the end of the year, these accounts reflect the differences between the planned and actual prime-cost of the work performed by auxiliary production, as well as the share of total production costs⁽⁹⁾.

We have provided the following accounting register of the production costs and the products received as an example of the activities of farms specializing in vegetable growing Table 5.

Research confirms that in determining the expected financial results, intensification of agricultural production, and choosing the priority focus areas for attracting investments, the optimal terms and markets for the sale of products (services) are of great importance.

In this regard, farmers should know how to revise the scheduled prime-cost of agricultural products. As a result, a proper calculation of production costs, the product manufactured per unit of measurement accepted in the industry, and finally the prime-cost variance are achieved.

Table 5. Company name _____ Head of the company _____

REGISTER

for accounting production costs in vegetables growing and production received as of December 2021

№	Expenses	Objects of Analytical Accounting						Totally by debit	Corresponding account	
		Onion			Tomato					
		from the beginning of the year	during the year	total	from the beginning of the year	during the year	total			
1	2	3	4	5	6	7	8	9	10	
I. Expenses on vegetables growing										
1	Tangible expenses	5 073 000	5 300 000	10 373 787 000	7 403 000	8 190 000	18 563 000			
1.1	Seeds and seedlings	4 500 000		4 500 000	4675 000		4 675 000	9 175 000	1010	
1.2a	Chemical and biological fertilizers	100 000	900 000	1 000 000	103 000	1 003 000	1 106 000	2 106 000	1010	
1.2b	Local fertilizers	60 000	300 000	360 000	80 000	400 000	480 000	840 000	2012	
1.3	Means of protection against harmful insects	100 000	1 900 000	2 000 000	100 000	3 000 000	3 100 000	5 100 000	1090	
1.4	Fuel lubricants	103 000	1 000 000	1 103 000	94 000	2 000 000	2 094 000	3 197 000	1030	
1.5	Services	210 000	1 200 000	1 410 000	410 000	1 000 000	1 410 000	2 820 000	6010	
2	Labour costs	52 000	7 700 000	7 752 000	600 000	9 000 000	9 600 000	17 352 000	6710	
3	Social tax	7 800	1 155 000	1 162 800	90 000	1 350 000	1 440 000	2 602 800	6520	
4	Maintenance costs of fixed assets	100 000	800 000	900 000	120 000	1 000 000	1 120 000	2 020 000		

Continued on next page

Table 5 continued

4 a	Depreciation of fixed assets	50 000	600 000	650 000	60 000	700 000	760 000	1 410 000	0200
4b	Repair of fixed assets	50 000	200 000	250 000	60 000	300 000	360 000	610 000	6010
5	Insurance costs	400 000	-	400 000	500 000	-	500 000	900 000	6510
6	Costs due to the organization of production	150 000	500 000	650 000	120 000	300 000	420 000	1 070 000	2510
7	Prime-cost difference								2310
8	Other expenses	20 000	100 000	120 000	25 000	100 000	125 000	245 000	1010
9	TOTAL	5 802 800	15 555 000	21 357 800	2 242 000	19 153 000	21 395 000	42 752 800	
10	Residual at the beginning of the year (conditional)								
11	OVERALL								
II. Receiving vegetables harvest									
12	Onion, centners	300						300	
13	Value, UZS	30 000 000						30 000 000	2810
14	Tomato, centners	-			250			250	
15	Value, UZS	-			30 000 000			30 000 000	2810
16	Total product, UZS	30 000 000			30 000 000			60 000 000	x

Source: This information was accounted for based on the indicator of Farruh Asl boglari farming of the Tashkent region.

In our opinion with this aim, it is appropriate to use the following formula Equation 1 :

$$T_T = \frac{(T_1 * T_2 \pm \sum B * B(\sum И * M) * ИФ)}{T_1 \pm \sum n * M} \quad (1)$$

Where: T- approximate prime-cost of a specific product type;
 Scheduled prime-cost of production per T₁-1 of land or 1 m² of greenhouse;
 T₂- scheduled prime-cost of a specific product type;
 M- a specific type of tangible (material) resource that formulates the productivity of an agricultural crop;
 n- natural fee corresponding to a specific type of tangible resource;
 PF- payroll fund for a unit of a specific product type.

The following information has been obtained when studying the relationship between the amount and prime-cost of products sold and the amount of profit obtained from 1 hectare of land in farms Table 6.

Table 6. Calculation of the amount of goods sold and the prime-cost of the profit amount per 1 ha of the land plot

Indicator	Scheduled (0)	Approximate (1)	The difference between the approximate profit and the scheduled amount		
			Total	Including	
				Due to amount	Due to prime-cost
Amount of the product sold (Ps), center	504	560	56	X	X
Prime-cost of 1 center of the product (T), UZS	15000	14899	101	X	X
Sale price 1 of 1 center of the product (SP), UZS	20000	20000	0	X	X
Amount of profit received from 1 ha of the land plot (Pr), UZS	2520000	2856560	336560	280000	56560

Source: This information was accounted based on the indicator of Baytkurgan farming of Tashkent region.

As a result of the decrease in the prime-cost of vegetable products due to the production cost standards analytical accounting by items and elements, as well as other favorable factors, the amount of profit per quintal has increased. As a result, the difference in the amount of profit received on account of 1 ha of cultivated area reached 336560 UZS.

The impact of each of the factors taken into account on this indicator is determined by the chain link method:

$$\begin{aligned} Pr &= (Ps_1 - Ps_0) * (Pr_0 - T_0) = \\ &= (560 - 504) * (20000 - 15000) = 280000 \text{ UZS} \end{aligned} \quad (2)$$

$$\begin{aligned} Pr_0 &= (T_0 - T_1) * Ps_1 = \\ &= (15000 - 14899) * 560 = 56560 \text{ UZS} \end{aligned} \quad (3)$$

From our point of view, it is appropriate to develop a number of descriptive groups of calculation units of different characters that meet all the requirements of a specific sector or sub-sector, for example, vegetable management and calculation process. In any case, a single universal approach to this problem for all industries is not appropriate for individual types of production.

4 Conclusion

The following conclusions were formulated regarding the improvement of cost tracking and calculation of production costs in agriculture:

1. Identification of items and objects of expenditures that are crucial when tracking expenditures in agriculture. Depending on the production and organizational and technological features, it is required to divide the costs by analytical calculation items and crops (or groups of crops), agricultural work, distributed costs, and other items of expenditure. It contributes to group costs by items, determines production cost elements for certain types of products, and plans and controls the use of resources.
2. There is a need to improve analytical accounting in specialized farms. For this reason, an improved form of “Accounting report on production costs and output” was recommended for analytical accounting of production costs and products received. This form provides cost accounting for items with monthly growing totals throughout the year and, as a result, the exact formation of the cost of production-by-production periods and technological processes.
3. The organization of analytical accounting in agriculture has its own characteristics. Therefore, when tracking expenses, it is necessary to use analytical accounts. Since the analytical accounting of production costs by the proposed method allows for accurate cost accounting for each type of product by items and elements and provides users with accurate and reliable information.
4. There are certain disadvantages in calculating the cost of production in specialized farms: in most farms, the cost is not calculated at all, in some it is calculated for the entire farm; even in specialized farms, the cost of production for the main types of crops is calculated not separately, but for groups of crops. During the research, the authors developed an improved system of objects for calculating the cost and calculation units based on the classification of agricultural crops. It enables a more accurate calculation of the cost of production by systematizing cost objects and cost units for planning and accounting of production costs.
5. When calculating the cost of production in farms, finished products are not divided into standard and non-standard. It leads to an increase in the cost of production.
For this reason, the proposals were developed based on the market price of their units and the procedure for calculating the distribution of products into standard and non-standard, as well as products intended for export and the domestic market. It allows to accurately calculate the cost of production.
6. Scientifically based methods of calculating the cost of fruit and vegetable products grown in specialized greenhouses, intensive use gardens for export and sale on the domestic market require further improvement. For this reason, methods such as the proportional method, the method of ratios, and methods of exclusion from the calculation of cost have been scientifically proven. As a result, it is possible to evaluate products, firstly, at a fixed or planned price, secondly, at a market price, and, thirdly, at prices acceptable for use on your own farm.

References

- 1) Tursunov US, Ibragimov AK. Peculiarities of the accounting balance in modern management system. *International Journal of Management, IT & Engineering*. 2020;10(2):24–58. Available from: <https://www.ijour.net/ijor.aspx?target=ijor:ijmie&volume=10&issue=2&article=004>.
- 2) Rizaev NK. Issues of adjusting national standards in compliance with international standards in uzbekistan (Evidence from accounting policy).. 2022. Available from: <http://ilmiytadqiqot.uz/index.php/iti/article/view/14>.
- 3) Yusupovich MB, Kadirovich RN. Expenses on research and development: experience of India and Uzbekistan. *International Journal of Social Science & Interdisciplinary Research*. 2022;11(5):197–205. Available from: <https://gejournal.net/index.php/IJSSIR/article/view/548>.
- 4) Bansal M, Garg A. Do high-quality standards ensure higher accounting quality? A study in India. *Accounting Research Journal*. 2021;34(6):597–613. Available from: <https://doi.org/10.1108/ARJ-06-2020-0162>.
- 5) Ibragimov AK. Organizational issues of audit evidence and their analysis in Uzbekistan. *International Journal of Research in Social Sciences*. 2021;11:108–117. Available from: <https://journals.researchparks.org/index.php/IJEFSD/article/view/4424>.
- 6) Bafoyev O. Agricultural production costs, product cost and ways to reduce it in Uzbekistan. *Science Review*. 2019;4(21):25–28. Available from: https://doi.org/10.31435/rsglobal_sr/31052019/6490/.
- 7) Akhter R, Sofi SA. Precision agriculture using data analytics and machine learning. *Journal of King Saud University - Computer and Information Sciences*. 2022;34(8-B):5602–5618. Available from: <https://doi.org/10.1016/j.jksuci.2021.05.013/>.
- 8) Lizot M, Trojan F, Afonso P. Combining Total Cost of Ownership and Multi-Criteria Decision Analysis to Improve Cost Management in Family Farming. *Agriculture*. 2021;11(2). Available from: <https://doi.org/10.3390/agriculture11020139/>.
- 9) Albderi AJT, Hasan MF, Flayyih HH. Measuring the level of banking performance according to the requirements of comprehensive quality management: an application study. *Ishtar Journal of Economics and Business Studies*. 2023;4(1):1–18. Available from: <https://doi.org/10.55270/ijeb.v4i1.15>.
- 10) Yunusov I, Sangirova U, Ahmedov U, Fayziev O, Kholiyorov U. Clustering of agriculture in the Republic of Uzbekistan . *E3S Web of Conferences*. 2023;381:3–3. Available from: <https://doi.org/10.1051/e3sconf/202338102002>.
- 11) Ismail WAW, Kamarudin KA, Van Zijl T, Dunstan K. Earnings quality and the adoption of IFRS-based accounting standards: Evidence from an emerging market. . *Asian review of accounting*. 2013;21:53–73. Available from: <https://doi.org/10.1108/13217341311316940>.
- 12) Al-Azmi MR, Saleh. The impact of applying IFRS on reducing EM practices and achieving sustainable development. An applied study in companies listed on the Kuwaiti Stock Exchange. *Scientific Journal of Financial and Administrative Studies and Research*. 2022;13(2):1546–1581.