

# Forecasting the financial results of the agribusiness company

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**Abstract** Competent management of the company's activities is largely determined by the ability to manage financial results, analyze the features of their formation, which ensures the effective functioning of the organization. Timely analysis allows to study development trends, deeply and systematically examine the factors of changes in activity results, justify plans and management decisions, monitor their implementation, identify reserves for improving the efficiency of economic activity, evaluate the results of the enterprise, and develop an economic strategy for its development. For commercial enterprises, the main criterion for performance assessment is the financial result. At the same time, not only the goals and objectives of the company are multiple, but also the methods used by specialists in planning of the financial results formation. The quality of management of financial results largely determines the effective operation of the company, the stable pace of its work and competitiveness in modern economic conditions.

## 1 Introduction

Financial results of business entities are the main indicator of successful economic activity aimed at a long period of time. In an unstable economic situation, it is necessary to carry out a forecast analysis of financial results in order to make adequate and timely management decisions on the development of agricultural companies.

More than 150 large and medium-sized companies are engaged in agricultural business in the Penza region. Special attention is paid to the self-financing capabilities of agricultural enterprises. [1,2,3]. Over the past five years, there has been a downward trend in the net profit of regional farmers, which negatively affects the development of the agricultural sector and the ability of companies to develop more dynamically. This situation is associated with many internal and external factors. The most significant internal factors are primarily the volume of products produced and their production cost. On a regional scale, it is difficult to identify trends that affect the level of costs and, as a result, the level of profit, so we chose one of the large agricultural enterprises (Pachelmskoe Khozyaistvo LLC, which is part of Rusmolko GC), based on the economic activity of which we will study the features of financial results formation.

We will analyze the dynamics of gross profit, as well as the share of cost in the revenue of Pachelmskoe Khozyaistvo LLC for 2015-2019 in table 1.

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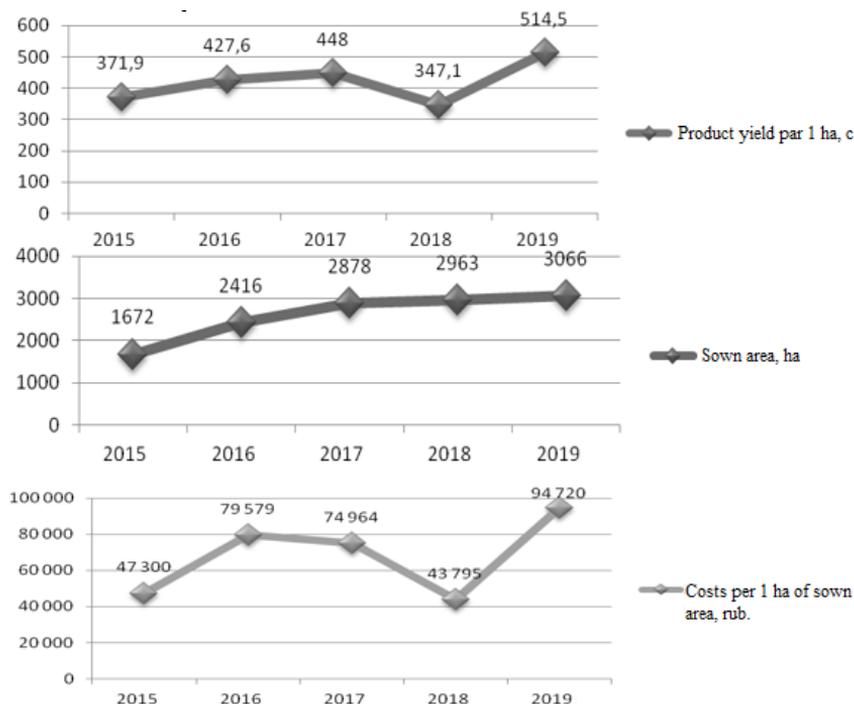
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**Table 1.** Dynamics of gross profit and costs in Pachelmskoe Khozyaistvo LLC for 2015-2019.

Indicator	2015	2016	2017	2018	2019	Change for	
						2015-2019	2018-2019
Revenue, thousand rub.	1900384	2252233	2750871	3260453	3756052	1855668	495599
Cost of sales, thousand rub.	1693535	2035130	2379586	2895930	3391687	1698152	495757
Gross profit, thousand rub.	206849	217103	371285	364523	364365	157516	-158
Cost share in sales revenue, %	89.12	90.36	86.50	88.82	90.30	1.18	1.48

Data of Table 1 indicate that the formation of gross profit in the economy has a positive trend, the profit from sales also increases from year to year. However, for 2015-2019, gross profit increased by 157516 thousand rub., and for 2018-2019-decreased by 158 thousand rub. To a large extent, this was negatively affected by the increase in the share of cost in sales revenue – for 2015-2019, this indicator increased by 1.18 percentage points, and for 2018-2019 - by 1.48 percentage points. These facts indicate that the cost of sales is growing at a higher rate than revenue. Since in 2019, the main contribution to gross profit was made by sales of crop production, the main attention should be paid to this branch of production of Pachelmskoe Khozyaistvo LLC.

Sugar beet does not take the first place in the structure of profit from sales of crop production. However, it is sugar beet that has a good potential to increase profits. Figure 1 shows the dynamics of changes in the main indicators for the sugar beet production in Pachelmskoe Khozyaistvo LLC.



**Fig. 1.** Dynamics of changes in the main indicators for the sugar beet production in Pachelmskoe Khozyaistvo LLC for 2015-2019.

The data in figure 1 show a significant increase in the acreage for sugar beet in Pachelmskoe Khozyaistvo LLC - almost 2 times over the analyzed period, and there are also significant fluctuations in costs per 1 ha of sown area for sugar beet, especially in 2018-2019 – from 43795 rub. in 2018 to 94720 rub. in 2019.

Therefore, it is worth paying attention to the peculiarities of financial indicators formation for this type of product.

## 2 Materials and methods

The quality of financial results management largely determines the effective operation of enterprises and business organizations, their stable performance and competitiveness in modern economic conditions [4].

Currently, the most common among the main methods of managing the financial results of an organization are: factor analysis; planning and forecasting profits, including on the basis of economic and mathematical modeling; distribution of profits; profit management based on the organization of responsibility centers [5,6].

Financial forecasting is used to identify real prospects for the development of the financial sector of the enterprise, as well as for the purpose of scientific justification of the planned volumes and directions of spending financial resources [7].

Economic and mathematical modeling is most in demand in business process management. The demand is explained by the simplicity of application and reliability of the results obtained, which can be taken into account when predicting the company's financial results. At the same time, the use of economic and mathematical modeling leads to the sorting of information and analytical support for management processes: certain requirements for the composition of information, methods of its storage and analysis are formulated and implemented [8].

## 3 Results and discussion

In order to forecast costs, it is necessary to determine the need for basic resources for sugar beet cultivation. The need for arable land, fertilizers, fuel and lubricants, sugar beet seeds, protective equipment, and monetary costs can be determined using an economic and mathematical model [9,10].

For the same enterprise, different options for optimization of production and production costs are used, which also give the corresponding economic effect. Decision-making on the choice of an option to optimize the production and cost of sugar beet in Pachelmskoe Khozyaistvo LLC will be carried out using an economic and mathematical model.

The stages of implementation of the economic and mathematical model for optimizing the cost of production in Pachelmskoe Khozyaistvo LLC are as follows:

1. Formulation of the optimization problem and the optimality criterion – the minimum cost of production.
2. Determination of the necessary list of variables and restrictions when solving the problem of product cost optimization.
3. Selection of technical and economic coefficients and collection of model data that determine the mathematical recording of product cost optimization.
4. Composing and solving a model numerical matrix.
5. Analysis of the results obtained, their adjustment in accordance with the task, if necessary.

Variables and model constraints are accepted in accordance with the task at hand. When forming a model of product cost optimization, a system of thirteen variables was formed. The minimum cost of sugar beet production is defined as the target function.

The results of calculations showed that Pachelmskoe Khozyaistvo LLC can count on the volume of sugar beet production in 1680725 c at a cost of 275293 thousand rub.

Table 2 presents the result of optimal decisions to changes in the cost of 1 c of sugar beet with the use of economic-mathematical model which shows that by optimizing the product unit cost compared to 2019 reduced by 130 rub., or more than twice.

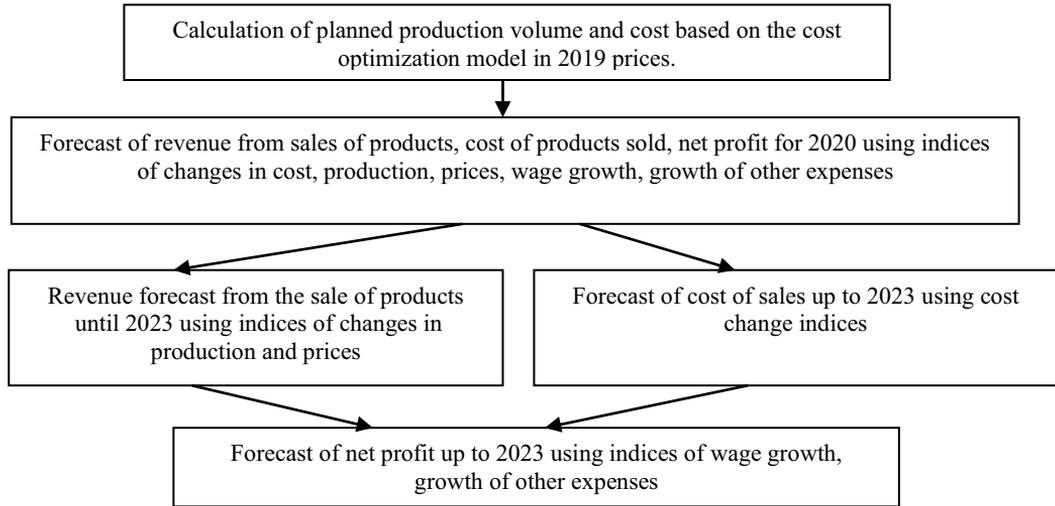
**Table 2.** Results of the optimal solution for changing the cost of 1 c of sugar beet, taking into account the use of an economic and mathematical model for Pachelmskoe Khozyaistvo LLC.

Cost name	Actual value (2019)	Planned value using OMM	Deviation of the planned value from the actual value
Sown area, ha	3066	3 066	0
Volume of sugar beet production, c	1559336	1680725	121389
Product yield from 1 ha, c	515	603	89
Total cost, thousand rub.	290412	275293	-15119
Wages with deductions for social needs, thousand rub.	35332	32224	-3108
Seeds and planting material, thousand rub.	22052	21830	-222
Mineral fertilizers, thousand rub.	33549	30353	-3196
Chemical plant protection products, thousand rub.	28919	27901	-1018
Electricity, thousand rub.	1861	1564	-297
Oil products, thousand rub.	32369	31610	-759
Maintenance of fixed assets, thousand rub.	31384	31365	-19
Other expenses, thousand rub.	104946	104946	0

It should be noted that the reduction of sugar beet cost is planned to be carried out through the following measures:

1. Sugar beet will be grown on the area where cereals (wheat and barley) were previously grown, as the best precursors of sugar beet.
2. The use of modern industrial technologies, in particular, increase of plant density, i.e. increase of the number of seeds per hectare, which is one of the features of modern technology of sugar beet cultivation, and this will increase the sugar beet yield.
3. To use sugar beet varieties with higher yields when sowing.

Based on the data obtained, we will forecast the financial results of Pachelmskoe Khozyaistvo LLC for 2020-2023. Figure 2 shows the algorithm for calculating the forecast of financial results.



**Fig. 2.** Algorithm for calculating the forecast of financial results.

To calculate the profit planned for 2020, using the above data based on the indicators of 2019, it is necessary to use the price index for agricultural products, the index of agricultural production, the prime cost index, the index of growth of wages, the index of growth of other expenses.

Table 3 shows the dynamics of the main indices calculated using the method of the Russian Academy of Agricultural Sciences and scientists of the All-Russian Research Institute of Agricultural Economics.

**Table 3.** Dynamics of price indices.

Index	2020	2021	2022	2023
The index of the cost of agricultural products	108	103.7	109.4	108.6
Index of agricultural production	111.8	102.4	103	102.7
Price index for agricultural products	109.3	105.2	105	104.8
Wage growth index	122.6	112.1	115	119.7
Other expenses growth index	120.3	101	106.8	104.3

The planned net profit of Pachelmskoe Khozyaistvo LLC in 2020 will be 836720 thousand rub.

Forecast reports on financial results for 2021, 2022, and 2023 were compiled using agricultural product price indices, agricultural production indices, cost indices, wage growth indices, and other expenses growth indices.

According to the forecast report on financial results in Pachelmskoe Khozyaistvo LLC for 2021, the growth rate of revenue will be 107.7 %, the growth rate of net profit - 123.6 %. The company's profitability will increase by 4.8 percentage points - from 26.2 % in 2020 to 31 % in 2021.

Analysis of data from the forecast report on financial results for 2022 at Pachelmskoe Khozyaistvo LLC shows that the revenue growth rate will be 107.7 %, and the net profit growth rate will be 123.4 %. The company's profitability will increase by 5.1 percentage points.

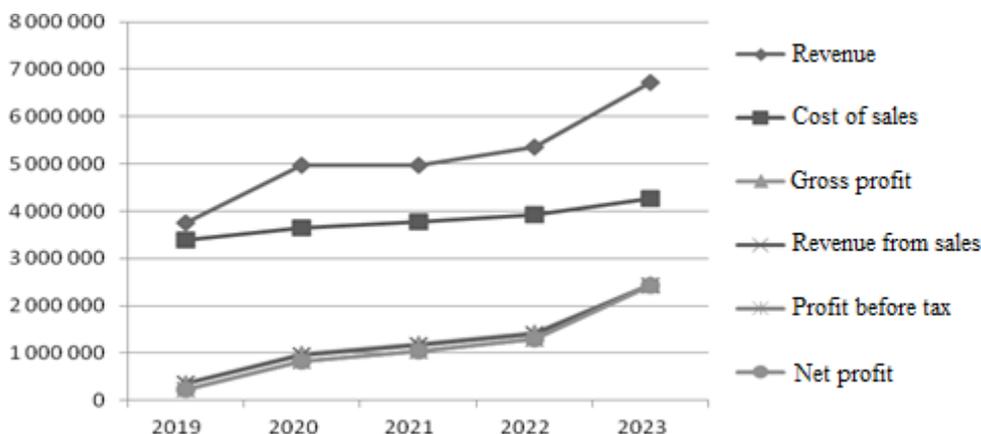
According to the forecast report on financial results for 2023, the revenue growth rate will be 125.4 %, and the net profit growth rate will be 186.1 %. The company's profitability will increase by 21.1 %.

Table 4 shows the dynamics of the forecast financial results of Pachelmskoe Khozyaistvo LLC as a whole, which reflects the positive growth of the company's net profit.

**Table 4.** Dynamics of forecasting financial results of Pachelmskoe Khozyaistvo LLC.

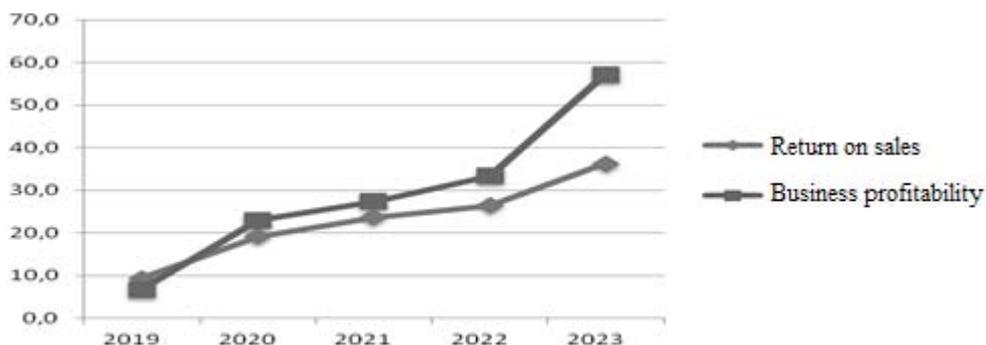
Factor (indicator)	Value of indicator			
	2020	2021	2022	2023
Revenue, thousand rub.	4613903	4970318	5354265	6716690
Cost of sales, thousand rub.	3643966	3778793	3918608	4255608
Gross profit, thousand rub.	969937	1191525	1435657	2461081
Management expenses, thousand rub.	-16456	-18431	-20642	-24709
Profit from sales, thousand rub.	953481	1173094	1415014	2436372
Interest receivable, thousand rub.	32246	35471	35825	37366
Interest payable, thousand rub.	-420631	-462694	-467321	-487416
Other income, thousand rub.	443860	478147	515083	646149
Other expenses, thousand rub.	-171895	-189085	-190975	-199187
Profit before tax, thousand rub.	837061	1034934	1307627	2433284
Net profit, thousand rub.	836720	1034593	1307286	2432943
Profitability of sales, %	19.2	23.6	26.4	36.3
Profitability of operations, %	23.0	27.4	33.4	57.2

Figure 3 shows the dynamics of the main financial indicators of Pachelmskoe Khozyaistvo LLC, taking into account the forecast made until 2023. A well-defined positive dynamics of all indicators is clearly visible here.



**Fig. 3.** Dynamics of main financial indicators of Pachelmskoe Khozyaistvo LLC for 2019-2023, thousand rub.

The dynamics of the main indicators of profitability, shown in figure 4, also reflects a significant improvement in the financial condition of Pachelmskoe Khozyaistvo LLC.



**Fig. 4.** Dynamics of the main indicators of profitability, %.

Thus, the results of the study show that Pachelmskoe Khozyaistvo LLC has every reason to expect a stable profit in the future until 2023 inclusive.

Achieving the forecast indicators of financial and economic activity in 2020-2023 will improve the balance sheet structure and, accordingly, determine the direction of spending its own resources not only to finance current activities, but also to pay dividends, as well as strategic goals, such as the development of new areas of activity, expansion of production, updating of production assets, etc. [11,12].

## 4 Conclusions

1. With the purpose of improving the management of financial results the main factors are identified influencing the profit margin, namely the increase in sales, decrease its costs, change in the structure of sales, development of pricing policies.
2. Analysis of the dynamics of revenue, gross profit and cost price showed an increase in costs in the revenue of the studied company, therefore, reserves for increasing profits should be sought not in increasing sales volumes, but in reducing the cost of production.
3. The type of products that have a good potential to increase profits was identified. Based on the analysis of the dynamics of changes in the main production indicators, the initial data were formed for the formation of an economic and mathematical model for forecasting the company's financial results, taking into account changes in the current production parameters of this type of product.
4. Analysis of the optimal solution to change the cost of sugar beet cultivating, taking into account the use of an economic and mathematical model, showed that as a result of optimization, the cost of a unit of production is reduced by 22.4 rub. compared to 2019.
5. Based on the data obtained, as well as indices calculated using the method of the Russian Academy of Agricultural Sciences and scientists of the All-Russian Research Institute of Agricultural Economics the forecast profit for the period 2020 – 2023 was calculated, forecast reports on financial results were prepared, according to which the company can receive a stable profit and significantly improve the balance sheet structure.
6. The results of the study showed that Pachelmskoe Khozyaistvo LLC will be able to improve its financial condition in the future, taking into account the calculated profit forecast and maintaining its positive dynamics.

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