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ANALYSIS OF PROFITABILITY IN THE RESEARCH OF ECONOMICAL ENTERPRISES PERFORMANCES

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Abstract

Investigations results about agricultural enterprises performances analysis within profitability rates in dynamic and factorial aspects are presented in this article. Quantitative influence on modification of consumed resources profitability rate of sold agricultural products structure, unit cost, average selling price was calculated. Results of factorial analysis show decisive influence of cost per unit of agricultural goods on the decreasing of return rate of consumed resources. This negative influence is explained by excessive growth of prices on fuel, fertilizers and pesticides.

Key words**:** *analysis, financial accountant decisions, performance, profitability ratios*

INTRODUCTION

The concept of economical financial performance has different senses, like growth, profitability, yield rate, efficiency rates in speciality textbooks.
The previous researches referred to the analysis of profit sensitivity based on effects measurement and also to the impact of cost structure on the profitability of agricultural products [9, 10].
This time, it is approached the performance of the enterprise based on profitability. Profitability is a synthetic form of expression of the economic and financial performance of an enterprise, taking into account the results of the use of factors of production, patrimony and available capital. The measurement and analysis of performance is carried out on the basis of the main rates of return: the rate of return of the resources consumed and used, the rate of commercial profitability, the rate of return on assets, the rate of return on equity. At the same time, these rates mirror multiple sides of the enterprise's activity on the basis of which the financial-accounting decisions are adopted, regarding the optimization of expenses, the formation of prices, the attraction of credits etc [1].
Given that profitability rates are among the most synthetic efficiency indicators, they allow the discovery of the strengths and weaknesses of the activity carried out and the adoption of measures to improve the company's performance in the future [2].

MATERIALS AND METHODS

The informational basis of the investigation is the following information sources on all agricultural enterprises in the Center Region of the Republic of Moldova:
-Annual financial ratios;
-Annual statistical research 21 - Sale “Sale of agricultural production”.
The estimation of the economic and financial performances was performed using traditional methods of economic analysis such as: rate method, comparison, decomposition, recalculation method, chain substitutions.

RESULTS AND DISCUSSIONS

The study on the evolution of profitability rates in the agricultural enterprises from the Centre region has shown us an unstable character (Table 1). The calculations made in Table 1 demonstrates that the lowest level of rates of return was recorded in 2020. The low level of profitability rates is also attested in 2012 and 2019.

These data reflect the unfavourable influence of climatic factors that determine the risk and uncertainty in obtaining the expected financial results by agricultural entities.

Table 1. Evolution of profitability rates in agricultural enterprises in the Central Region of the Republic of Moldova (%)

Rate designation	Year								
	2012	2013	2014	2015	2016	2017	2018	2019	2020
1. Rate of return of resources consumed and used	18.51	22.17	26.52	24.05	25.89	30.96	24.58	18.33	16.22
2. Rate of return on trade	15.62	18.15	20.96	19.39	20.56	23.64	18.18	15.21	13.33
3. Rate of return on assets	2.85	5.02	6.38	3.19	4.91	7.76	3.84	3.17	2.05
4. Rate of return on equity	2.89	8.97	11.37	5.31	13.4	21.81	12.38	7.46	5.17

Source: Author's calculations based on data of the National Bureau of Statistics of the Republic of Moldova.

At the same time, the calculations presented in Table 1 shows that in the favorable years after climatic conditions such as 2014, 2016 and 2017, the highest rates of return were obtained. For example, in 2017, for each leu of the resources consumed and used, a gross profit of 30.96 bani was obtained or 6.91 bani more than in 2015. In 2017 there is an increase in the profitability of assets and equity compared to 2015, respectively, by 6.57 and 19.5 percentage points.

In the average for 2015-2017, there was a tendency to increase all rates of return compared to the average of 2012-2014, which is due to the increase of gross profit by 1.2 times, profit up to taxation of 1.3 times and net profit of 1.7 times.

From 2018 to 2020 we see a significant decrease in all the rates of return. In our opinion, the decrease in profitability is a result of the unfavorable influence of climatic factors, the pandemic crisis and the increase in prices of diesel fuel, fertilizers and pesticides.

The results obtained (Table 1) demonstrate that there is a connection between the rates of return given that the increase or decrease in the rate of return of the resources consumed and used implies the same tendencies in the modification of the other rates. Thus, in the period of 2015-2017, the rate of return of the resources consumed and used constituted 27.01%, and in the average 2018-2020 this rate decreased to 19.71% or by 7.3 percentage points. It is also established the deminuation of the rate of return on assets by 3.05 percentage points and of the return on equity capital by 5.17 percentage points.

The existence of the nominated connection allowed us to highlight from the variety of profitability rates the most significant that reflects the efficiency of the operational activity of the agricultural enterprises, this being the rate of profitability of the resources consumed and used. The significance of this rate, in my opinion, can be explained by the informational capacity that ensures highlighting the efficiency of the investments made in the basic activity of the enterprise, because more than 95% of the effect obtained and the effort made come from the sale of agricultural products [3].

The validity of the rates as instruments for assessing the economic and financial performances is identified by comparing the effective level with the established norm.

In the specialized literature there are opinions according to which the normative value of the rate of return of the consumed and used resources must be ≥25.0% [4].

The results of the comparative analysis of this rate (Figure 1) show that from the last nine years to six (2012, 2013, 2015, 2018, 2019, 2020) the actual values were lower than the norm established on average by 4.4 percentage points.

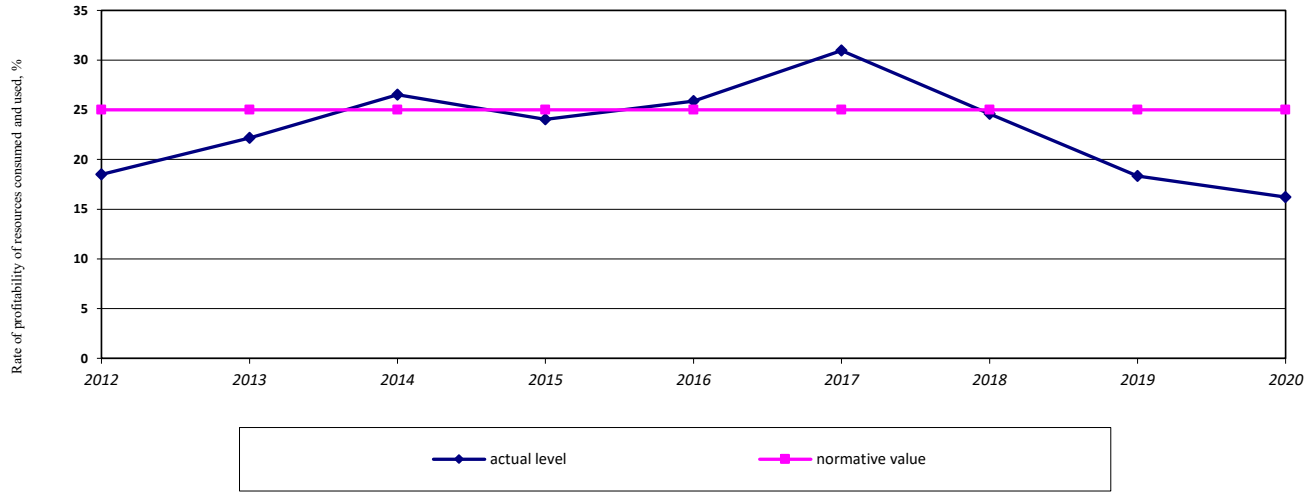

Fig. 1. Dynamics of the rate of profitability of the resources consumed and used in the agricultural enterprises of the Central Region of the Republic of Moldova
Source: Elaborated by the author on the basis of the information in Table 1.

At the same time, there is a considerable exceeding of the rate of return of the resources consumed and used compared to the norm in 2014 - by 1.52 percentage points, and in 2017 almost by 6.0 percentage points. The changes observed in the evolution of the rate of return of the resources consumed and used require the identification of influence factors. The factorial analysis model reflecting the correlation between the rate of return of the resources consumed with the evolution of costs, the increase in prices and the structure of sales can be presented:

$$\boldsymbol{R_{rc}} = \frac{\sum \boldsymbol{qiPi} - \sum \boldsymbol{qiCi}}{\sum \boldsymbol{qiCi}} \times \mathbf{100} \quad (1)$$

According to this model (formula 1) the factors that influence the rate of return of the resources consumed and used (costs) are:
-change in the structure and assortment of agricultural products sold ($_{\Delta}$q);
-change in unit costs for products sold ($_{\Delta}$c)
-change in the selling prices of the products sold ($_{\Delta}$p).
The methodology of factorial analysis consists in quantifying the influence of factors after the following calculation relationships:

1.1 $$\Delta \boldsymbol{R_{rc}^{q}} = \left[\left(\frac{\sum \boldsymbol{qi_{(1)}Pi_{(0)}} - \sum \boldsymbol{qi_{(1)}Ci_{(0)}}}{\sum \boldsymbol{qi_{(1)}Ci_{(0)}}}\right) - \left(\frac{\sum \boldsymbol{qi_{(0)}Pi_{(0)}} - \sum \boldsymbol{qi_{(0)}Ci_{(0)}}}{\sum \boldsymbol{qi_{(0)}Ci_{(0)}}}\right)\right]$$

1.2 $$\Delta \boldsymbol{R_{rc}^{c}} = \left[\left(\frac{\sum \boldsymbol{qi_{(1)}Pi_{(0)}} - \sum \boldsymbol{qi_{(1)}Ci_{(1)}}}{\sum \boldsymbol{qi_{(1)}Ci_{(1)}}}\right) - \left(\frac{\sum \boldsymbol{qi_{(1)}Pi_{(0)}} - \sum \boldsymbol{qi_{(1)}Ci_{(0)}}}{\sum \boldsymbol{qi_{(1)}Ci_{(0)}}}\right)\right]$$

1.3 $$\Delta \boldsymbol{R_{rc}^{p}} = \left[\left(\frac{\sum \boldsymbol{qi_{(1)}Pi_{(1)}} - \sum \boldsymbol{qi_{(1)}Ci_{(1)}}}{\sum \boldsymbol{qi_{(1)}Ci_{(1)}}}\right) - \left(\frac{\sum \boldsymbol{qi_{(1)}Pi_{(0)}} - \sum \boldsymbol{qi_{(1)}Ci_{(1)}}}{\sum \boldsymbol{qi_{(1)}Ci_{(1)}}}\right)\right]$$

From the factorial model (formula 1) we can see that the costs of the products sold exert on the rate of profitability a double action, influencing differently the size of the numerator and the denominator of the formula. If the growth rate of unit costs is exceeded on that of selling prices, the denominator, i.e. the profit will be reduced and the denominator representing the cost of sales will increase, which will lead to the negative influence of this factor being decisive on the R_{rc}.

Table 2. Information base for carrying out the factorial analysis of the rate of return of the resources consumed and used in agricultural enterprises in the central region

Indicator	In average 2015-2017	In average 2018-2020		Absolute deviation, (±)
		Recalculated	Actually	
1. Sales revenue, mil. lei	3,362.4	3,330.6	4,172.7	+810.3
2. Cost of sales, mil. lei	2,647.3	2,808.8	3,485.6	+838.3
3. Gross profit (gross loss), mil. Lei	715.1	521.8	687.1	-28.0
4. Rate of return of resources consumed and used, %	27.01	18.58	19.71	-7.3

Source: Author's calculations based on data of the National Bureau of Statistics of the Republic of Moldova.

Using the data from Table 2 we will calculate the influence of these factors when changing the rate of return of the resources consumed and used in the average 2018-2020 compared to 2015-2017. The data presented in Table 2 demonstrate that in the period 2018-2020 the rate of profitability of the resources consumed and used recorded a decrease compared to the average of 2015-2017 by 7.3 p.p. This dynamic is a result of the decrease of the gross profit by MDL 28 million. lei against the background of the increase of the cost of sales by 838.3 mil. lei or with 31.7%.

Table 3 presents present the calculation of the influence of factors when changing the rate of profitability of the resources consumed and used according to the formulas 1.1., 1.2., and 1.3.

Table 3. Calculation of the influence of factors when changing the rate of return of resources consumed and used in agricultural enterprises in the Central region

Name of the factors	Calculation of the influence of factors	Result of influence ± percentage points
1. Change in the structure and assortment of agricultural products sold	$\left[\left(\frac{521.8}{2,808.8}\times 100\right)-\left(\frac{715.1}{2,647.3}\times 100\right)\right]$	-8.43
2. Change in unit costs for products sold	$\left[\left(\frac{-155.0}{3,485.6}\times 100\right)-\left(\frac{521.8}{2,808.8}\times 100\right)\right]$	-23.03
3. Change in selling prices of marketed products	$\left[\left(\frac{687.1}{3,485.6}\times 100\right)-\left(\frac{-155.0}{3,485.6}\times 100\right)\right]$	+24.16
Total	X	-7.3

Source: Author's calculations based on data of the Table 2.

From the calculations made in Table 3 it results that the reduction of the profitability of the resources consumed and used in the agricultural enterprises was determined by the unfavorable influence of the following factors:

(1)Changes in the sales structure caused the rate of return to decrease by 8.43 percentage points. Due to the reduction of the share of products with a higher profitability compared to the average of the period 2018-2020 such as: fruits, grapes, vegetables, sunflower. During this period, an unfavorable influence exerted a harsher competition for these products on the European Union market, as well as the pandemic crisis.

(2)The upward dynamics of unit costs (which increased in 2018-2020 by 31.7% compared to the previous period) negatively influenced the decrease of the profitability rate by 23.03 percentage points. This result is largely due to the increase in the prices of diesel fuel, fertilizers and pesticides. At the same time, the rise of prices may be the consequence of inflation. Thus, comparing the intensities of the influence of unit costs and the selling prices of agricultural products, we note that these factors have approximately the same

values (only opposite directions), which determines that inflation is an important cause in the increase in unit costs.

The results of the factorial analysis show that in the reference period the increase of selling prices for agricultural products influenced the increase of the rate of profitability by 24.16 percentage points.

Thus, this factor completely exceeded the negative influence of unit costs (-23.03 p.p.), but it was not enough to exceed the decrease in the rate of profitability, which requires increasing the competitiveness of agricultural products to be promoted on new markets (for example, apples in the United Arab Emirates).

The analysis carried out leads decision-makers to measures regarding the causes with unfavourable impact on the dynamics of the rate of return on the resources consumed respectively to the influence of the increase in unit costs. It is known that it is not the reduction of costs that represents a lever to increase the rate of profitability, but the negotiation of prices for the purchased resources, their efficient management, the observance of production technologies and the motivation of employees [5].

As it was previously mentioned, the evolutionary nature of the rate of return on consumed and used resources can also modify the other rates, thus demonstrating that the efficiency of the basic activity of agricultural enterprises determines the size of the rates of return on assets and equity.

The rate of return on assets as a performance indicator expresses the managerial ability to obtain profit for one leu of available assets [8].

In the agricultural enterprises of the Central Region, the return on assets can be analyzed according to the Du Pont system and decomposed by the influencing factors according to the model:

$$R_a = \frac{Pimp}{TA} \times 100 = \frac{Pimp}{TA} \times \frac{VV}{VV} = \frac{VV}{TA} \times \frac{Pimp}{VV} \quad (2)$$

From the obtained model we observe that the factors that influence the change in the return on assets are:

-The number of asset rotations ($\Delta\frac{VV}{TA}$);

-Sales profitability ($\Delta\frac{Pimp}{VV}$).

In this context, we conclude that measures aimed at increasing the profitability of assets are necessary:

-Efficient management of the company's assets, so that for every lei of total assets, the entity must obtain 2 lei of sales revenue;

-Increasing the profitability of sales, which must be at least 10%.

At the same time, we would like to mention that there is an inverse correlation between these two factors of asset profitability. This is manifested by the fact that the increase in the number of asset rotations implies a reduction in sales profitability (by reducing sales prices), while an increase in sales profitability (by increasing sales prices) causes a decrease in the number of asset rotations (by reducing sales volume) [6].

The management option for improving performance through one of these two variables must take into account the nature of the company's activity and its activity sector. Thus, notable differences in the economic profitability of different companies can appear due to the acceleration of the turnover of assets or through the increase of the commercial margin [7].

In Figure 2 we present the possible variants of the profitability of the assets depending on the rotation of the patrimony ($\Delta\frac{VV}{TA}$) and sales profitability ($\Delta\frac{Pimp}{VV}$). From the graphic presentation, it follows that depending on the nature of the activity, significant differences may appear between companies regarding the rates of return on assets.

Thus, under the conditions of the lowest turnover of assets (0.25 - 1.0) against the background of the decrease in sales profitability from 15.0% to 10.5%, the return on assets registers an increase from 3.75% to 10.5%.

Accelerating asset turnover from 1.25 to 1.5 along with reducing sales profitability from 9.0% to 7.5% provides a maximum ROA of 11.25%.

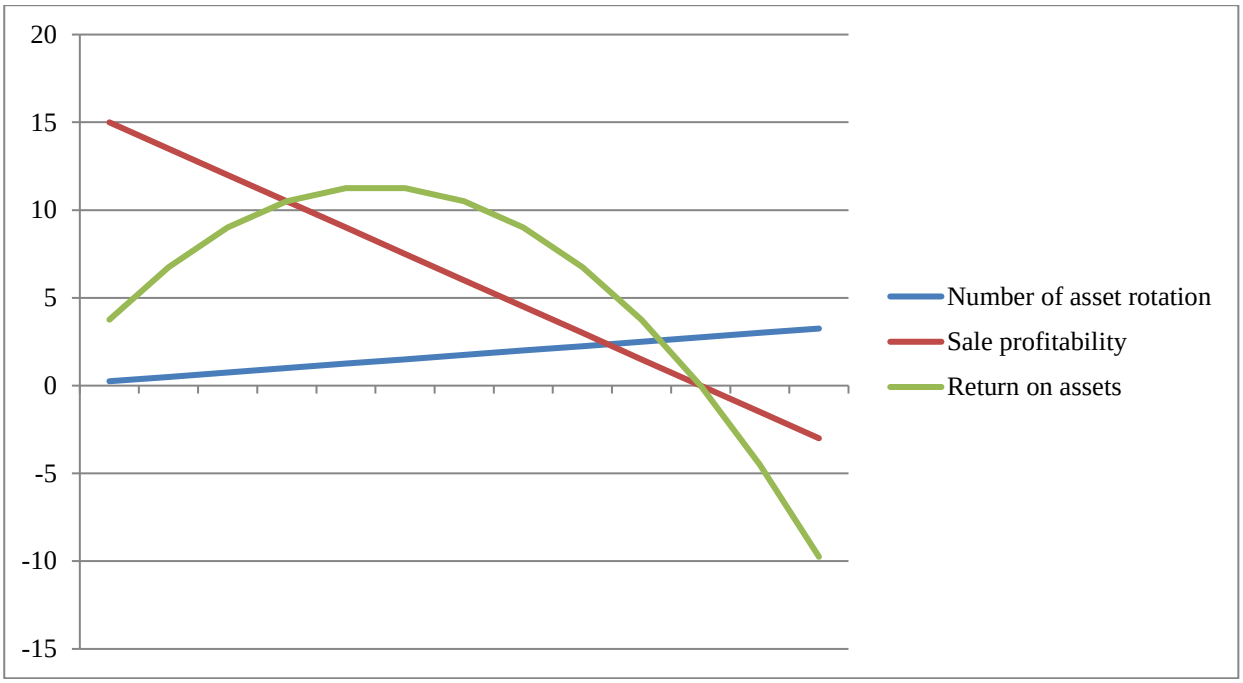

Fig. 2. Rate of return on assets depending on asset turnover and sales profitability.
Source: The author's calculations based on the data of the National Bureau of Statistics of the Republic of Moldova.

The increase in the number of rotations from 1.75 to 2.5 implies a decrease in the profitability of sales from 6.0% to 1.5% and influences the reduction of the return on assets from 10.5% to 3.75%. In the conditions when the number of rotations ≥ 3.0, negative values of sales profitability and the rate of return on assets are attested. The evolution of profitability rates is also reflected directly on the financial situation, summarizing various ways of evaluating the performance of the agricultural enterprise (Figure 3).

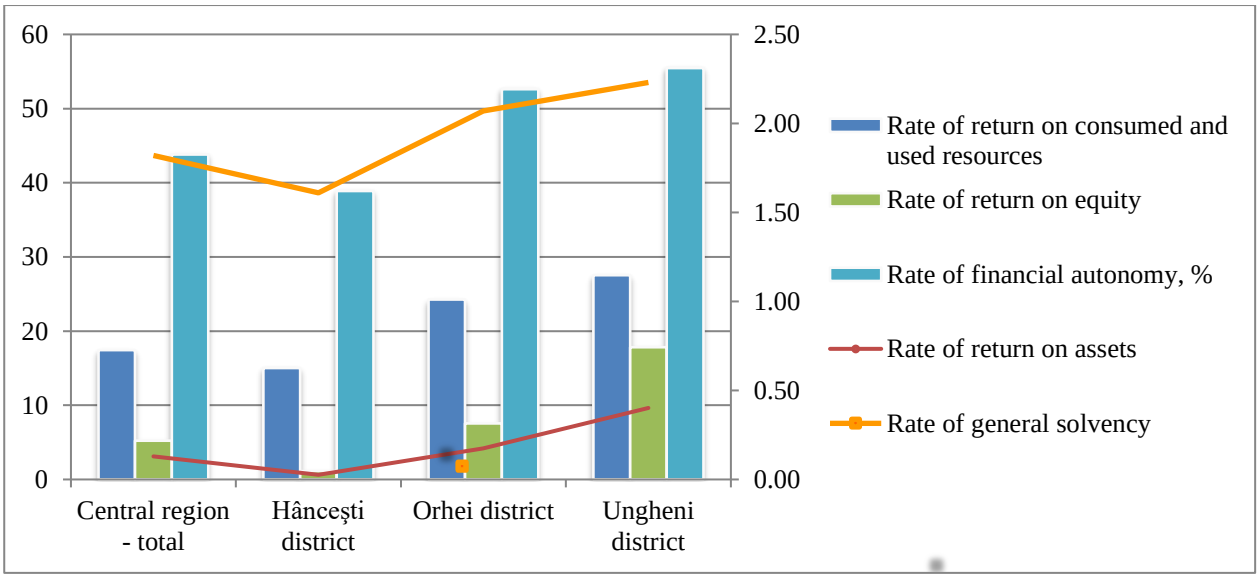

Fig. 3. Concordance of profitability rates with financial autonomy and general solvency rates
Source: The author's calculations based on the data of the National Bureau of Statistics of the Republic of Moldova.

From the graphic presentation (Figure 3) we notice that the higher the level of profitability, the higher the degree of financial autonomy and the ability of agricultural enterprises to pay their debts. For example, in Hânceşti district, where the lowest values of profitability rates were recorded, financial autonomy and general solvency do not reach the minimum acceptable value. The same situation is characteristic for the Central

region as a whole. When the rate of return on consumed and used resources exceeds 20%, the rate of financial autonomy and the general solvency rate fall within the established limits of the regulations (Figure 3).

Thus, in the agricultural enterprises in the districts of Orhei and Ungheni, where the rate of return on consumed and used resources is 24.25% and 27.55% respectively, the rate of financial autonomy exceeds the established ceiling of 50%, the degree of indebtedness is much lower than the average for the region Center and Hâncesti district.

In the districts of Ungheni and Orhei, the sum of the total sources exceeded the total debts more than 2 times, a fact that confirms a good financial stability without any risk of insolvency.

CONCLUSIONS

The results of the investigations allow us to conclude that the financial stability of agricultural enterprises depends on the efficiency of the operational activity. Thus, the higher the rate of the return on the resources consumed and used, the higher the efficiency of the use of the total assets, of own capital, and the more stable the financial situation. Starting from this, we believe that in order to reach the minimum values of the financial stability rates, it is necessary to observe the payment discipline for the agricultural production delivered to the processing factories and other economic agents. In this context, we mention that at the end of 2019, 668.2 million lei or 53.93% of the total amount of commercial receivables from the agricultural enterprises of the Center region are overdue. Based on the situation created, we consider it necessary to apply a well-argued system of a state support that provides for the distribution of subsidies allocated from the state budget to the agricultural enterprises. In our opinion, the minimum amount of subsidies must cover the cost of mineral fertilizers and petroleum products consumed, i.e. the amount subtracted from working capital in connection with the disproportion of prices for agricultural products on the one hand and for fertilizers and petroleum products on the other hand [11].

At the same time, we must recognize that the high degree of indebtedness of agricultural enterprises, the insufficiency of subsidies, and the consequences of the recent drought do not allow a quick financial recovery in the branch. Due to the lack of financial resources and efficient equipment, many agricultural enterprises refuse to apply fertilizers, quality seeds and carry out technological soil tillage operations, which consequently lead to the decline and financial instability of agriculture.

We believe that for the recovery of financial stability in agriculture, we need:

- the implementation of a reasoned subsidy system by the state, which must cover the disproportion between the prices of fertilizers, chemicals and fuels, which will contribute to increasing the efficiency of the operational activity;
- in order to increase the degree of objectivity in assessing the solvency of agricultural enterprises, the optimal range of the current liquidity rate must be reduced from 2.0-2.5 to 1.0-1.5;
- in order to increase financial stability and the efficiency of operational activity in the agricultural enterprises, it is necessary to respect the production technologies, the rational use of land, material and human resources, as well as the timely reaction to changes in climatic factors and the competitive environment.

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