AN ANALYSIS OF THE GENERAL ECONOMIC STATE OF TECHNICAL-MATERIAL RESOURCES IN AGRICULTURE IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

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Abstract:
The development and modernization of agricultural exploitations is closely related to the expansion, improvement and rational use of the technical-material resources operating within the complex process of obtaining and supplying agricultural products.
Within the competitive market economy, achieving high productivity per hectare and per animal, increasing labor productivity and profitability largely depends on the size, structure, quality and efficient management of the technical-material basis.
Agricultural practice in our country and other countries has shown the close connection between technical equipment and labor productivity in agriculture.

Key words: *economic efficiency, technical-material basis*

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The analysis of the technical-material basis must be regarded both in its dynamic evolution, and also in terms of its components. Changes that occur over time change the structure of the technical-material basis, often with significant influence on the results in production, but also on the economic and financial results of enterprises. If the share of fixed assets follows an increasing trend, this implies that orientation was made towards technical modernization, towards an equipment of the workforce in general. If the share of current assets follows an increasing trend, we can consider that material consumption has increased as well, which could translate into an increased volume of material costs.

The development and modernization of agricultural exploitations is closely related to the expansion, improvement and rational use of the technical-material resources operating within the complex process of obtaining and supplying agricultural products. The technical-material factors play a very important part both economically and socially [1].

In the agricultural process of technical and social restructuring, capital requires new approaches, both in terms of the volume of capital provided, value and technical structure, as well as the proper allocation of additional investment. The volume of employed capital is determined by marginal productivity and interest rates, both components bearing numerous situations of risk and uncertainty.

As a production factor, capital is the category of goods produced and used in order to produce other economic goods. As a most general concept, capital comprises all the financing resources available to a trader in order to acquire assets [5].

The specifics of agricultural production and rural life may determine in some cases the inappropriate use of capital for various reasons (lack of interest, low skills, etc.). Although capital growth is determined by agricultural productivity and risk, an important part in this process is held by management capacity. Structural changes in agriculture have a great impact on the capacity of capital. Capital should primarily be used for modernization in order to determine fundamental changes in agriculture.

The capitalization of agricultural exploitations is done with great difficulty due to the prevalence of subsistence units which lack the proper equipment and an efficient

use of capital. The lack of a specialized credit system and a coherent and firm support policy, able to provide loan conditions favorable to the rapid development of agriculture, are major impediments to the capitalization of exploitations and the increase of agricultural productivity [8].

Efficient agricultural exploitations can be financed by their own or borrowed resources, whereas inefficient exploitations can not obtain bank credits for production and investments. The favorable framework for new technical and technological developments in Romanian agriculture resides in private property over the land and the main technical means [6].

The unfavorable factors to the modern equipment of agriculture and an increasing economic efficiency are: the excessive parceling of land and the inadequate size of agricultural exploitations for the use of farm tractors and advanced machinery; low government resources allocated to the modernization of agriculture; the poor and inconsistent management of the financing and credit agricultural policy; the low presence of foreign investors in agriculture; the insufficient resources of agricultural producers to invest and participate in the co-financing of development projects, etc. [8].

Although the private sector has gradually expanded over fixed assets, it has formed since the beginning with a substantial shortage of capital. Afterwards, by the dismantling or deterioration of certain production capacities, and also as a result of the lack of investment, this state has heightened the technological crisis in the private sector and has led to shutting down several state capital agricultural units.

Table 1
The assest in agriculture

Specification	**1990**	**1995**	**2000**	**2005**	**2007**
Total economy - mil. lei current prices	3.498	169.866	1.011.322	624.753	718.630
From which agriculture - mil. lei current prices	309	19.313	22.938	9.043	10.988
% out of total	8,83	11,37	2,27	1,45	1,53

Source: *Calculated using the data collected from the Statistical yearbook, 1991, 1996, 2002, 2006, 2008*

Reduction in the volume of fixed assets in economy has been followed by a more pronounced reduction in agriculture, as a result of shutting down production agricultural cooperatives, of the degradation and dismantling of the patrimony.

Things have been the same when it comes to agricultural investments. Investments, which prior to 1989 were mainly oriented towards expanding the agricultural infrastructure (irrigation systems, drainage, dams, zootechnical constructions) and less towards technical and technological modernization, have decreased significantly, while some infrastructures were destroyed.

The depreciation of the technical-material basis in the context of a decline of investments has led to the substitution of fixed capital with human workforce, with negative effects on agricultural productivity and providing the domestic supply of products.

Table 2
The investments in agriculture

Specificare	**1990**	**1995**	**2000**	**2005**	**2007**
Total amounts invested in	28.979	1.394.662	6.850.000	2.122	3.844

agriculture (mil. lei current prices)					
The share of investment in agriculture with respect to the total economy (%)	17,1	10,7	7,5	3,9	5,3

Source: *Calculated using the data collected from the Statistical yearbook, 1991, 1996, 2002, 2006, 2008*

The achievement of investment objectives is conditioned by internal and external financing sources, by investments of the government and economic agents. The resources of small producers are negligible, and those of agricultural companies can be difficultly formed from the development fund. Attracted sources (bank loans, participatory loans, external credits, etc.) are hardly accessible due to the low repayment capacity and the inadequate financial creditworthiness of traders.

During the transition period there has been a reduction in agricultural investment from domestic sources and this hasn't been substituted by an increase of direct foreign investments in the sector.

The key areas of technical-material modernization in agriculture refer to: expanding the use of machinery, electrification, chemicalization, increasing the consumption of highly productive biological material (seeds, planting material, animal breeding), expanding irrigations in areas affected by drought, etc. [7].

The technical-scientific progress and innovation have a strong impact on the efficiency of machinery and production. Agriculture requires new production methods to reduce costs and improve quality by a more appropriate blending of economic and natural factors, of internal and external factors of the exploitation.

Agricultural practice in our country and other countries has shown the close connection between technical equipment and labor productivity in agriculture.

Within the competitive market economy, achieving high productivity per hectare and per animal, increasing labor productivity and profitability largely depends on the size, structure, quality and efficient management of the technical-material basis.

The structure of the technical-material basis, given its two components - fixed assets and fixed current assets - is given by the share of the two categories of means in the total value of the technical-material basis [4].

The effectiveness of mechanization in agriculture is conditioned on the one hand by the technical and economic features of the machines, and on the other hand by the series of factors defining the natural and economic circumstances in which the use of tractors and agricultural machinery takes place [3].

The economic efficiency of the technical-material basis use is the ratio between the effect, materialized in indicators synthesizing the entire economic-financial activity (total revenue, turnover, total year production, added value, gross profit) and the total value of fixed and current assets - as an effort in achieving this economic-financial effect.

In terms of using and improving mechanical means, reducing the amount of work per product unit can be achieved in two main ways, namely [3]:

- improving means of work reduces the need for human workforce. In this case, the same quantity of products can be obtained by using a smaller amount of human workforce;

- improving means of work allows, using the same amount of human workforce, to process a larger quantity of work items.

The economic efficiency of the technical-material basis in agriculture has a positive evolution only when the correlation between effort and effect is observed, namely when the growth rate of various synthetic economic-financial results is higher than the growth rate of the technical-material basis.

In order to determine the effectiveness of labor mechanization in an agricultural exploitation, we can analyze indicators showing either the mechanization intensity per unit area, or the ration between the total production obtained and the amount of mechanized labor or investments in mechanization means [3].

Agriculture requires new production methods to reduce costs and improve quality by a more appropriate blending of economic and natural factors, of internal and external factors of the exploitation.

Increasing agricultural production can be achieved by small additional economic efforts in relation to the effects, and also by using specific means (varieties, optimum density, optimum time for planting seeds, etc.).

The mechanization of agricultural labor leads to an increased efficiency of agricultural land as a result of improving the quality of labor, expanding cultivated areas, rendering easier and saving human labor, enhancing the role of management in agricultural production, increasing revenue, reducing costs, changing the mentality of producers to market requirements, etc. As the consequences of using machinery in agriculture are fairly different, it is necessary to provide agricultural producers with accessible alternatives [2].

The main directions of these guidelines refer to: the price of tractors and machinery, increasing the number of companies providing the mechanization of agricultural labor and the direct supply of machinery to farms, professional training for specialized mechanization workers and agricultural producers who use machinery and tractors, the direct equipment of farms with machinery, providing the necessary spare parts, facilities for fuel prices, limiting the excessive parceling of properties, etc. [7].

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