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THE SIGNIFICANCE OF THE FINANCIAL OPTIMAL PURCHASE OF AGRICULTURAL MECHANISM IN MEDIUM-SIZED AGRICULTURAL ENTERPRISES

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Abstract: The focus of the study was aimed at uncovering the impact of lending and joint investments within the framework of observing agricultural mechanization in the work of medium-sized agricultural enterprises in the Republic of Serbia.
We have established that there is a greater influence within the lending of agricultural mechanization in relation to joint investments of the same in the business of medium-sized agricultural enterprises in the Republic of Serbia.
Apart from that, the greatest impact, individually observed, is visible in the purchase of tractors in all years of observation (2023-2025) in relation to other forms of agricultural machinery analyzed in the regular business of medium-sized agricultural enterprises.
In addition, we have established that it is not possible to reliably predict the valuation of tractors based on other forms of valued agricultural machinery ($F=0.741$, $p<0.593$) in the work of medium-sized agricultural enterprises.

Key words*: Agricultural techniques, evaluation, form of procurement.*

INTRODUCTION

Achieving different influences on management decisions of top management in the sense of uncovering influences such as possible influence on crediting, crediting and then movements in connection with joint investments on the example of the overall evaluation of agricultural mechanization in agriculture is a very fundamental and strategic issue

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in the work of medium-sized agricultural companies in the Republic of Serbia, but also in a broader sense [1-7].

There are other major influences in making valid management decisions of the top management of medium-sized agricultural enterprises in the Republic of Serbia, and certainly the process of crediting agricultural machinery and management in relation to joint investments in agricultural machinery is one of the important influencing factors [8-15].

However, agricultural mechanization when viewed individually does not have the same importance for making important management decisions, as is the case with other individual parts of equipment evaluation [16-17].

Tractors, as a dominant category of agricultural machinery in the work of medium-sized enterprises, should be viewed from the point of view of financial valuation and not only as a technical matter of management decision-making by top management [18-21].

MATERIALS AND METHODS

The paper covers the observation period (2023-2025) in such a way that survey research was used. In this sense, 55 medium-sized companies were surveyed in the period from December 1-31 for the mentioned period 2023-2025, that is, the research covered a three-year period.

The research included the valuation of 155 randomly selected values of tractors, combines, i.e. procurement of new agricultural machinery.

And the research itself referred to the observation of lending for the purchase of all agricultural machinery in relation to joint investments in the mentioned equipment as two important financial procurement models.

In the paper, for the purpose of examining possible differences in the mentioned values of agricultural equipment, the application of one-factor analysis of variance (ANOVA) in Table 1-2 was used.

The second part of the research was based on predicting changes based on the evaluated tractors of all powers in relation to the mentioned forms of other analyzed agricultural parts of agricultural mechanization in the work of medium-sized agricultural enterprises in the Republic of Serbia, Table 3.

RESEARCH RESULTS AND DISCUSSIONS

The research investigated whether there is a significant difference in the value of the use of loans as well as joint investments of several agricultural enterprises in relation to the type of agricultural machinery as well as in relation to the procurement of the same by years of observation (2023-2025).

The obtained results of the research are grouped into two large parts in the presentation of Table 1-2, that is, in relation to the use of loans and joint investments in the purchase of new analyzed agricultural machinery.

Table 1. Use of loans in relation to the type of agriculture mechanization and procurement of the same

Business year	Tractors	Combine harvesters	Attached agricultural machines	Procurement of new agricultural machinery
2023	-0.071	-0.024	-0.029	-0.037
2024	0.081	0.080	-0.082	0.014
2025	-0.042	0.068	-0.049	0.025
Total	-0.022	0.040	-0.040	0.019

Based on the results of the correlation analysis, it can be seen that there is no significant connection between the purchase of new agricultural machinery and the use of loans in relation to the type of agricultural machinery (Table 1).

Table 2. Use of joint ventures in relation to the type of agriculture mechanization and its procurement

Business year	Tractors	Combine harvesters	Attached agricultural machines	Procurement of new agricultural machinery
2023	-0.050	0.078	0.010	0.013
2024	0.041	0.047	-0.049	0.032
2025	0.045	0.013	-0.017	0.069
Total	0.013	0.015	-0.016	0.013

Below, or in the second part of the research, the results of the presentation of correlations between the use of joint investments in relation to the acquisition of new agricultural machinery are given, viewed in relation to the type of agricultural machinery selected (Table 2).

The second part of the research presents the prediction of changes in valued tractors as the dominant category of influence within the observation of agricultural mechanization in the work of medium-sized agricultural enterprises, which is presented in Table 3.

Table 3. Prediction of changes in evaluated tractors of all powers in the work of medium-sized agricultural enterprises in the Republic of Serbia

	Beta	t	p
Constant	-	5.378	<0.0005*
Combine harvesters	-0.030	-0.396	0.690
Attached agricultural machines	-0.089	-0.110	0.911
Procurement of new agricultural machinery	0.025	0.341	0.729

Therefore, it can be seen that all independent variables do not have a significant impact on predicting changes in relation to the values of tractors operated by medium-sized agricultural enterprises, as shown in Table 3 of this research.

One-factor analysis of variance (ANOVA) was used to examine the differences in set and mentioned values.

First, based on the results of the ANOVA test shown in Table 1-2, it can be observed that significant differences are visible in relation to the observed forms of financing the purchase of agricultural machinery through lending or joint loans of several legal entities in relation to the procurement of new agricultural machinery.

Second, in addition, differences are visible for the entire period of observation by years of observation in relation to the analyzed types of agricultural machinery (2023-2025).

Thirdly, the existence of clearly expressed higher values for tractors compared to the analyzed combine harvesters and attached agricultural machinery is visible.

Fourthly, there is significantly more influence in the observation of all forms of agricultural mechanization in the form of procurement through credit compared to the form of procurement of agricultural mechanization through joint venture procurement.

Fifth, multiple regression analysis was applied to predict the change in relation to the valuation of tractors as the most important agricultural technique in the business of medium-sized enterprises in the agricultural production of the Republic of Serbia based on the value of combines, attachment machinery and procurement of new agricultural machinery.

The regression analysis yielded a coefficient of determination of 0.016, on the basis of which it can be concluded that the obtained model describes 1.6% of the total variance.

Changes in the value of tractors as the most important agricultural machinery cannot be predicted based on the value of combine harvesters, attachment machinery and the purchase of new agricultural machinery since the model obtained is not statistically significant ($F=0.741$, $p=0.593$).

Overall, the observed results are compatible with already published works that unify the issue of top management decision-making, evaluation and focus on the subject of leading technical support to management in relation to financing models as a source for procurement by agricultural medium-sized enterprises [22-27].

CONCLUSION

The study clearly shows that the following conclusions can be observed.

First, that the realistic observation of valued agricultural machinery is more influenced by the credit ratio in relation to joint investments in the procurement of agricultural machinery.

The second stated previous basic position is strengthened by the existence of differences for all years of observation (2023-2025) both in relation to the analyzed forms of agricultural mechanization in the regular operations of medium-sized agricultural enterprises and in relation to the two forms of procurement, i.e. in relation to lending and joint procurement.

The third largest influence on the business of medium-sized agricultural enterprises is the evaluated tractors within the analyzed agricultural mechanization.

The fourth prediction in evaluating tractors, as the most important agricultural machinery, cannot be reliably made through the assessment of combine harvesters, attachments, and new machinery purchases alone. Additional research is needed, such as analyzing different top management decisions and comparing tractors with other valuable company assets.

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ZNAČAJ FINANSIJSKE OPTIMALNE NABAVKE POLJOPRIVREDNE MEHANIZACIJE U SREDNJIM POLJOPRIVREDNIM PREDUZEĆIMA

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Abstrakt: Fokus studije bio je usmeren na otkirvanje uticaja kreditiranja i zajedničkih ulaganja u okviru posmatranja poljoprivredne mehanizacije u radu srednjih poljoprivrednih preduzeća u Republici Srbiji.
Ustanovljeno je da postoji veći uticaj u okviru kreditiranja poljoprivredne mehanizacije u odnosu na zajednička ulaganja u poljoprivrednu mehanizaciju u poslovanju srednjih poljoprivrednih preduzeća u Republici Srbiji.
Osim toga najveći uticaj pojedinačno posmatran vidljiv je u nabavci traktora u svim godinama posmatranja (2023-2025) u odnosu na ostale oblike poljoprivredne analizirane mehanizacije u redovnom poslovanju srednjih poljoprivrednih preduzeća.
Pored toga, ustanovljeno je da se ne može izvršiti sigurno predviđanje vrednovanja traktora na osnovu ostalih oblika vrednovane poljoprivredne mehanizacije ($F=0.741$, $p<0.593$) u radu srednjih poljoprivrednih preduzeća.

Ključne reči: *Poljoprivredna tehnika, vrednovanje, oblik nabavke.*

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