PRODUCTIVITY AND PROFITABILITY OF THE CARROT PRODUCTION IN THE F.Y.R. OF MACEDONIA

ПРОДУКТИВНОСТА И ПРОФИТАБИЛНОСТА ВО ПРОИЗВОДСТВОТО НА МОРКОВ ВО РЕПУБЛИКА МАКЕДОНИЈА

Mile PESHEVSKI*, N. GEORGIEV*, K. KOCEV**

**Faculty of Agricultural Sciences and Food, Skopje, F. Y. R. of Macedonia*
***Challenge, Skopje, F. Y. R. of Macedonia*
Corresponding author: Mile PESHEVSKI, e-mail milepesevski@yahoo.com

Abstract: *In this paper authors determined that the production costs by the farm-lands from the Group II are for 49.1% higher, although the cost price is for 14.1% lower, due to higher (for 73.9%) crop. The expenditure for the human labor by the farms of the Group II is higher up to 7.1% than by the Group I, and the productivity is higher up to 62.7%, due to better technical equipment of the farms belonging to this Group. The profit level (according to the comparative index), is almost the same by both Groups, due to rather the positive impact of the higher (up to 16.7%) carrot selling price by the Group I compared to the Group II, than the negative impact of the level of total costs per unit/land by Group II.*

Abstrakt: *Во трудот авторите констатираат дека кај стопанствата од групата II производните трошоци се повисоки за 49,1%, но цената на чинење е пониска 14,1% како резултат на повисокиот (за 73,9%) принос. Потрошокот на живиот човечки труд кај стопанствата од групата II е повисок за 7,1% во однос на групата I, а продуктивноста е повисока за 62,7%, пред сè поради повисоката техничка опременост на таа група стопанства. Нивото на профитот (според релативен показател), речиси е исто кај двете групи стопанства, поради повисокото позитивно влијание на повисоката (16,7%) продажна цена на морковот кај групата I во однос на групата II, од колку на негативното влијание на висината на вкупните трошоци на единица површина кај група II.*

Key words: *carrot, price, costs, productivity, profit.*
Клучни зборови: *Морков, цена, трошоци, продуктивност,профит.*

INTRODUCTION

The land capacities for agricultural production in the Republic of Macedonia, in average, amount (2000-2004) 1265 thousand hectares [1] or 49.2% from the total territory of the country. Of this arable land, 44.3% is arable land, and 90% of this arable land represent the private property. The rest of the arable land (less than 10%) is state-owned and is given under concession to individuals with time-limit from 15 to 50 years. During the research, the market gardening had been organized on, in average, 61,528 hectares [2] or 11.2% from the total arable land. Over 30 gardening cultures are being cultivated within this land, including the carrot. Most of these cultures are being cultivated on over thousand hectares, but some of them are being cultivated in a relatively small plots. No matter the number and the area of the cultivated cultures, in the Republic of Macedonia vegetables have been produced with relatively high quality, due to relatively good comparative climate, in regard to the most of the European Countries. The Institution of Statistics of Republic of Macedonia, continuously keeps a record for 11 market-gardening vegetables up to now. Unfortunately, among these vegetables, the carrot has not been taken into consideration. But, according to the available

statistical data, in the Republic of Macedonia is produces annually, in average, 710,719 tons of fresh vegetables [2]. Most of this production has been consumed within the Country, and the rest of it has been exported as fresh or processed vegetables. From the total export of market-gardening vegetables (approx. up to 60%) belong to the fresh vegetables exported, than the processed ones. The value of the total export of fresh market-gardening products, within the research period, in average amounts 16,537,000 US$ [3]. Most of these vegetables have been exported to Serbia and Monte Negro (45.43%), but in Romania only 1.55% [6]. Regarding the export of carrots, within the research period, in average it amounts 1,303,633 US$ or 10.34% from the total exports value. The Republic of Macedonia has been exported fresh carrots, in average, to 23 countries, and the average price of carrot amounts 0.13 US$/kg [5].

The purpose of this study is to make an analysis of the production-commercial results within the process of carrot production, by the family farms in the Republic of Macedonia.

WORKING METHOD AND SOURCE OF DATA

The data collecting has been carried through direct questioning (during the year 2005) of ten independent carrot producers (sort of carrot: Laguna) on the territory of the Republic of Macedonia. Due to the fact that the cultivating area varied between 0.1 to 5.0 hectares, we have grouped all farm-lands into two groups, such as: Group I with cultivating area from 0.1 to 1.0 hectares and Group II - from 1.1 to 5.0 hectares. Afterwards, the average values of the results from the poll have been calculated for each group. The costs are calculated based on the natural expenditure of the inputs and actual prices on the market. The amortization of the used capital assets (machines and equipment) has been calculated according to the method of timely amortization. Conversion of the national currency (MKD) into EUR has been carried out by the average value (2000-2004) of 66.77 MKD/EUR, 61.86 MKD/US$, and 61.34 MKD/EUR for the year 2005.

RESULTS AND DISCUSSION

Cost price of the production. The data in the chart 1 show that the larger family farms (Group II) pay (2,3 times) higher salary costs. That is the result from the engagement of larger number of workers, due to larger scope of activities per time and per area. It means that the work has not been standardized, but the workers are being paid by the spent time at work, which reduces the work discipline and effectiveness and increases at the same time the production costs.

By the farms from the Group I, i.e. the smaller producers make higher costs (up to 48.12%) for fuel, oil and lubricants due to the fact that they offer carrots on the local markets more frequently (18 times) but in smaller quantities, and that is how the higher costs have been created (Chart 1). The farmers from the Group I sow the carrot seeds manually, during which process they spend almost up to 100% more seeds, which influences on the increase of the material costs.

The larger farms, Group II, in order to produce carrots, take in lease a land from the neighbors, for which land they pay rent even up to 500 EUR/hectare. Their production has been presented on the wholesale market in Skopje. The smaller farms (Group I) carry out their carrot production on their own property. But they present their goods locally, i.e. on so called “green markets”, for which aim they rent a “place” (a counter) for selling purposes. For the rent of the counter they pay 10 EUR/month. The average amount of this group of costs is 11.90% from the total costs. All farmers covered by the poll, during the carrot production use their private machines and equipment for mechanical accomplishment of the production processes. For the used mechanization, they calculate in average 134 EUR/ha as a cost for the

amortization of the capital assets. The poll has shown that the larger producers (from the Group II) use more mechanization, especially machines for sowing and harvesting, compared to the smaller producers (from the Group I). Therefore, they calculate higher amount (up to 6%) for amortization of the mechanization.

Table 1

Cost structure for carrot production

Type of costs	Group I (0,1 -1,0 ha)		Group II (1.1 -5.0 ha)	
	Amount (EUR/ha)	Participation (%)	Amount (EUR/ha)	Participation (%)
1. Salaries	551.19	18.22	2274.86	49.13
2. Fuel, oil and lubricants	518.10	17.13	349.78	7.75
3. Materials	1434.95	47.43	1302.34	28.87
I Total variable costs	2504.24	82.78	3868.28	85.76
4. Leasing of capital assets	391.26	12.94	505.38	11.20
5. Amortization of the capital assets	129.61	4.28	136.94	3.04
II Total fixed costs	520.87	17.22	642.32	14.24
Total of production costs	3025.11	100.00	4510.60	100.00
Cost price (EUR/kg)	0.0657		0.0564	

The average costs for carrot production per unit-land in the Republic of Macedonia amount 3 768 EUR/ha with almost equal amount of costs for salaries and materials (Graph. 1).

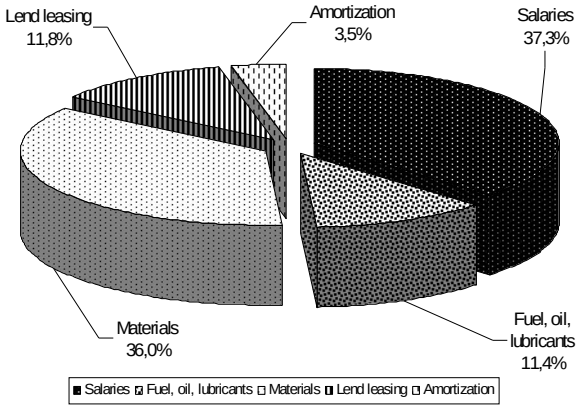

Figure 1. Structure of costs of a carrot production

Productivity and profit of the carrot production. The productivity of labor is a reflection of the level of qualitative engagement of the participant into the production process and the results from the production, as well as of the degree of investment in the production means. In our case, by the farmers from the Group II, the labor productivity is higher for 62.7% than by the farmers from the Group I, which means that they have relatively higher level of production intensity.

In spite of the fact that the larger farms (Group II) achieve bigger crop (for 73.9%) as well as higher production value (for 49.07%) than the farms from the Group I, the degree of profitability is almost equal. It is due to the fact that the production costs by the farms from the Group II are higher for 49.11% than by the farms from the Group I.

Table 2

Productivity and profit of the carrot production

Index	Group I (0,1 -1,0 ha)	Group II (1.1 -5.0 ha)
Labor expenditure (h/ha)	427.0	457.5
Crop achieved (kg/ha)	46.000	80.000
Production value (EUR/ha)	13 123.57	19 563.09
Productivity (kg/h)	107.7	174.9
Profit (%)	76,97	76,93

CONCLUSIONS

Based on the results from the poll carried out among the family farms, which among others, produce carrot, can be concluded the following:

- The size of the land (by the Group II) has no significant impact on the level of the production costs per unit-land. It means that the ground for cultivating carrot should be increased in order to achieve proportional reduction of the costs.

- By the smaller farmers – producers, which in the production process involve only the family members, have higher efficiency of the invested labor than the larger farmers, which beside the family members, they hire workers additionally.

- Relatively the same amount of labor is invested at both groups of farms per unit-land, and the productivity of labor significantly differs (for 62.7%). It means that the farms from the Group II use significantly more mechanization with higher productivity level, i.e. they are more technically equipped, than the farms from the Group I.

- Although the crop achieved by the farmers from the Group II is for 73,9% higher than by the farmers from the Group I, there is no proportional increase of the production value and the profit. A negative impact here, by the farmers from the Group II, has the level of the production costs (foremost the salary costs), and positive impact by the farmers from the Group I has the higher purchase price (for 16.7%).

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