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RESULTS AND POTENTIAL IN THE ECONOMIC EFFICIENCY OF BREEDING YOUNG SHEEP FOR MEAT

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Abstract

The paper analyses the economic efficiency of the young sheep meat, for the year 2019, as well as the results that can be obtained following the variation of some indicators. The methodology used is the economic analysis, based on the calculation of technical-economic indicators and economic efficiency indicators. The results indicate that for young sheep meat, the total income value is higher than the total expenses by 6.6%. The variable expenses represent 97.2% of the total expenses, and within the variable expenses, the highest share, of 50.5%, is held by the expenses with fodder. The cost per unit of product is 9.4 lei/kg, and the average selling price per unit of product is 10 lei/kg live. If the value of the production increases by 20%, the gross profit increases by 28.6%. The price at the farm gate can vary between 8 lei/kg, if the production value is reduced by 20% and 12 lei/kg when the value of the production increases by 20%.

Key words**:** *economic efficiency, sheep, meat, indicators*

INTRODUCTION

In order to satisfy the need for sheep meat for domestic consumption, but also to create the export availability, it is necessary to fully exploit the productive capacity of the species for meat production, to make the best use of the fodder resources, to fatten the entire herd of lambs available for slaughter and to sale them at higher body weights, as well as to apply the methods to increase the economic efficiency of the breeding and fattening the young sheep [4]. Feeding is an essential factor, with direct influences on production and economic efficiency [3]. The application of breeding and fattening technologies for sheep youth, both in small and medium-sized farms, as well as in large farms, leads to very good results in terms of profitability.

Their productivity is conditioned, to a decisive extent, both by valorisation of all the productive particularities of this species, as well as by the viability and the pace of growth and development of the lambs [10].

The economic decisions must follow the optimal allocation of resources, taking into account the existing resources and a certain structure of the obtained results.

Of great importance is the quality of the results obtained, therefore, the whole concept of economic efficiency is a qualitative concept. Comparing the effects with the efforts, structuring this report under the influence of the time factor and tracking the quality of the obtained results ensures the efficiency of any economic activity [11].

It is known that Romania has a large availability and a tradition of sheep meat for export. In the last years, the activities of promotion of sheep meat have led to an orientation of the breeders in the direction of sheep meat production, but also of the consumers for an increase of this product among the consumption preferences. The sheep sector has significant potential for many rural areas in terms of development and employment, in particular through the sale of sheep meat, as well as high quality dairy products, which can be distributed through short supply chains at the local level [7].

MATERIALS AND METHODS

In order to analyse economic efficiency of young sheep meat, for the year 2019, a series of indicators were used. Thus, the technical-

economic indicators were estimated in terms of cost, price, productivity, profitability, breakeven point, as well as a series of economic-financial indicators such as the value of the main production, the productivity of labour force in value expression, labour costs at 1,000 lei main production, material expenses at 1,000 lei main production, total expenses at 1,000 lei main production and so on.
Also, simulations of possible scenarios have been performed, with decreases or increases in the value of the production, or with variations of certain categories of expenses, to see what results can be obtained.

RESULTS AND DISCUSSIONS

Starting with the calculation of the different categories of expenses of the technological estimate, the obtained results are presented in Table 1.

Table 1. Technological estimate - young sheep meat

	M.U.	Quantity	RON/ M.U.	RON /head
Fodder expenses				184.00
Hay	kg	156	0.60	93.60
Succulent fodder	kg	500	0.12	60.00
Coarse fodder	kg	0	0.10	0.00
Concentrates	kg	38	0.80	30.40
Biologic material	kg	15	10.00	150.00
Energy and fuels	RON			5.00
Medicines	RON			14.00
Other material expenses	RON			3.00
Supply	RON			8.70
Animal insurances	RON			0.00
TOTAL VARIABLE EXPENSES	RON			364.70
Labour	RON			10.60
General expenses	RON			0.00
Interest to credits	RON			0.00
Amortization	RON			0.00
TOTAL FIXED EXPENSES	RON			10.60
TOTAL EXPENSES	RON			375.30

Source: Own calculations.

Analysing the structure of expenses on young sheep meat, it can be seen that most of the expenses consist of variable expenses, and within them, about 50.5% are those with the fodder, followed by the expenses with the biological material (41.4%). This situation is shown also in the Fig. 1.
Table 2 presents the income and expenditure budget of the young sheep meat.

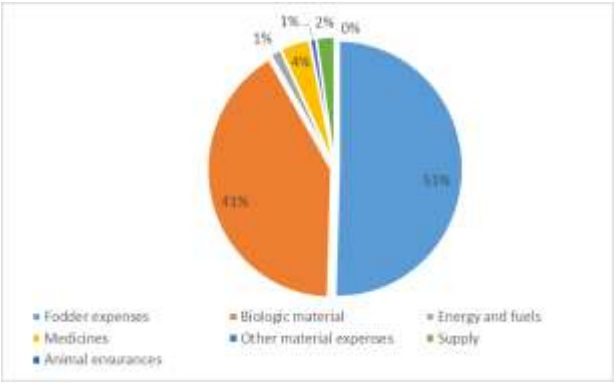

Fig. 1. Structure of variable expenses at young sheep meat
Source: Own calculation.

Table 2. Income and expenditure budget

	Average daily gain	
	RON/head	RON/kg
VALUE OF PRODUCTION	400.00	10.000
Of which, main production	400.00	10.000
SUBSIDIES	23.00	0.575
RAW PRODUCT	423.00	10.575
TOTAL EXPENSES	375.30	9.383
Of which, for main production	375.30	9.383
VARIABILE EXPENSES	**364.70**	9.118
Fodder expenses	184.00	4.600
Biologic material	150.00	3.750
Energy and fuel	5.00	0.125
Medicines	14.00	0.350
Other materials	3.00	0.075
Supply quota	8.70	0.218
Animal insurances	0.00	0.000
FIXED EXPENSES	**10.60**	0.265
Labour expenses	10.60	0.265
General expenses	0.00	0.000
Interest to credits	0.00	0.000
Amortization	0.00	0.000
TAXABLE INCOME	24.70	0.618
Taxes	2.5	0.062
NET INCOME + subsidies	45.2	1.131
TAXABLE INCOME RATE (%)	6.6	6.6
NET INCOME RATE+ subsidies(%)	12.1	12.1
COST OF PRODUCTION	375.3	9.383
PRICE	400.0	10.000

Source: Own calculations.

The calculated cost of production is 375.3 RON/head, and the delivery price of 10 RON/kg live leads to a production value of 400 RON/head. Adding the subsidies, it reaches a gross product of 423 RON/head. Under these conditions, the taxable income rate is 6.6%, and the net income rate plus subsidies reaches 12.1% (Table 2).
By applying intensive technologies and by specializing the breeding in the direction of

meat production, a high profitability can be obtained. These results can be obtained due to the technical-economic peculiarities of the species, of which we mention: makes good use of a wide range of forage resources; requires small investments and maintenance costs are lower; is suitable for joining with other zootechnical, or vegetable branches. [3]. In Fig. 2, there are presented the cost and the price of the young sheep meat, for the year 2019.

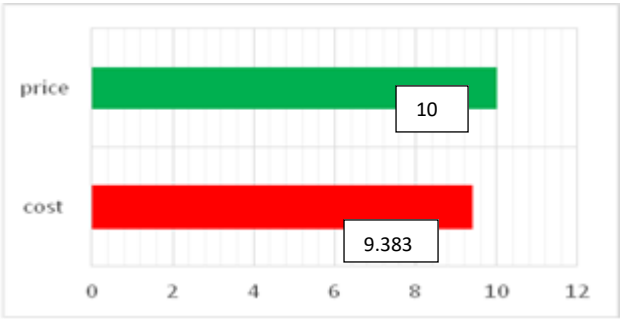

Fig 2. Production cost and selling price
Source: Own calculation.

The results show that the difference between production cost (per kg) and selling price of live sheep youth is very small, the rate of taxable income being 6.6%.
Under the conditions of accessing subsidies, the rate of net income plus subsidies amounts to 12.1% (Fig. 3).

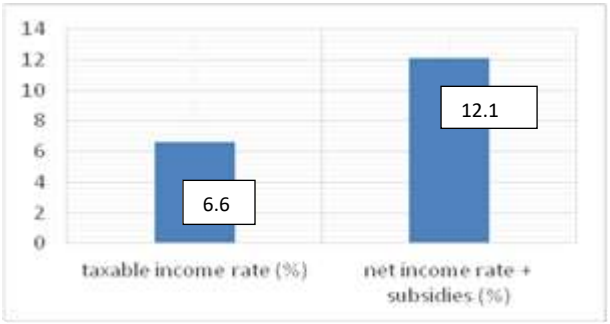

Fig. 3. Income rates for young sheep meat, 2019
Source: Own calculations.

The results indicate that the breakeven point is reached at a production value of 120 lei and a weight of 12 kg / head. The operating risk rate is 30%, and the security index is quite high, being 70%.
It turns out that the situation of young sheep meat is comfortable, because the safety margin is over 20%.

In order to estimate the economic efficiency of the young sheep meat for the year 2019, a series of indicators was calculated which we present in Table 3.

Table 3. Technical-economic indicators of economic efficiency

No.	INDICATORS	M.U.	VALUES
1	Average production	gr/head/ day	200
2	Value of production	RON/kg	10.000
3	Value of the main production	RON/kg	10.000
4	Total expenses	RON/kg	9.383
5	Expenses for the main production	RON/kg	9.383
6	Variable expenses	RON/kg	9.118
7	Material expenses	RON/kg	8.775
8	Fixed expenses	RON/kg	0.265
9	Labour expenses	RON/kg	0.265
10	Unit cost	RON/kg	9.383
11	Price	RON/kg	10.000
12	Work productivity in physical expression	Man - hours/kg	0.09
13	Labor productivity in value expression	RON/man-hour	111.11
14	Labor costs at RON 1000 total production	RON	26.50
15	Material expenses at 1000 RON total production	RON	877.50
16	Expenses at 1000 RON main production	RON	938.25
17	Profit or loss on the product unit	RON	0.618
18	Rate of return	%	6.6
19	Margin on variable expenses	RON	0.883
20	Margin on variable expenses%	%	8.8
21	Breakeven point in value units	RON	120
22	Breakeven point in physical units	kg	12.01
23	Operating risk rate	%	30
24	Security index		0.70
25	Absolute position as against breakeven point	RON	280
26	Relative position as against breakeven point		2.33

Source: Own calculations.

Some simulations of possible scenarios were made, as follows: increasing or decreasing the value of the production by 20%, as well as maintaining the initial result, when the fixed costs are reduced by 10% and the results are in Table 4.
When the value of production increases by 20%, the result increases by 28.58%, and when the value of production decreases by 20%, the result is lower by the same 28.58%. If fixed expenses are reduced by 10%, in order to obtain the initial result, a reduction of variable expenses follow, and the value of production will decrease by 3%.

Table 4. Simulations of possible scenarios

	Indicators	Values	%	Breakeven point Result = 0	Result to be obtained at an increase of value of production by 20%	Result to be obtained at a decrease of value of production by 20%	Maintaining initial result when fixed expenses are reduced by 10%
1	Value of total production	400.00	100	120	480.00	320.00	387.99
2	Variable expenses	364.70	91.18	109.51	437.64	291.76	353.75
3	Margin on variable expenses	35.30	8.83	10.60	42.36	28.24	34.24
4	Fixed expenses	10.60		10.60	10.60	10.60	9.54
5	Result	24.70		0.00	31.76	17.64	24.70

Source: Own calculations.

As potential for the young sheep meat, we can consider that the numerical evolution of the sheep herds indicates their increase since 2012. Romania ranks the 4th in the EU, after the UK, Spain and Greece.

Of the total number of sheep, over 99% belong to the private sector, and within it, over 92% are in individual agricultural holdings.

Domestic sheep meat production had a continuous growth trend between the years 2012-2017, reaching the end of the period with an increase of 8.4%.

Valorisation of sheep meat production: 56% of it is delivered directly to the market during the holidays, 33% is intended for family consumption - which involves a very small number of intermediaries.

As negative aspects, we can mention small productions, weak sales of the obtained products, due to the lack of slaughterhouses of small capacity, in order to increase the internal consumption of sheep meat.

In 2017, there were 256,000 farms in our country, of which over 61% fall in the size class under 10 heads, that is, belong to households that are not market oriented [8]. Young farmers and newcomers to the agricultural sector should be further supported, through direct aid and rural development policy, in line with national policies, in order to introduce incentives for the creation or takeover of sheep and goat farms, considering that the high average age of farmers in the livestock sector, which surpasses even that of other agricultural professions, due to their insufficient profitability, are among the main challenges in maintaining the vitality of rural areas and maintaining food security [7].

When approaching a European strategy in the field of sheep farming, we need to take into account the current and future directions of sheep exploitation at EU level, as the sheep sector in Europe is made up of important traditional agricultural enterprises, which support the survival of thousands of producers who provide products of excellent quality and with specific characteristics, as well as derived products, thus having an essential socio-economic contribution in rural areas [6].

In the extensive exploitation, the production of sheep meat is obtained economic certainty only if a large part of the feed is cheap, i.e. the sheep are fed on natural pastures and with marginal products [5].

Sheep farmers are interested in obtaining meat, but also in sheep's milk, leading to a new breed structure. In the current situation in Romania, with the change of the exploitation directions in the sheep breeding, the objectives of the breeding programs have been modified, the first place being the increase of the level of meat and milk production, which can ensure an increase of the economic efficiency indicators [1].

What is negative on the sheep sector, is the fact that the export of live animals continues, and the slaughter decreased by about 32.8%. Raw material is still being sold, without taking into account the fact that higher economic results can be obtained by selling value-added products [9].

In a report made by the European Parliament, it recommends, among other things, the

replacement of the export of live animals with value-added products, such as frozen or chilled meat (http://www.ziare.com/europa/uniunea-europeana/romania-ar-crea-peste-5-000-de-locuri-de-munca).

The sheep and goat sectors are characterized by low profitability, with revenues being among the weakest in the Union, largely due to high operational and regulatory costs, which sometimes exceed sales prices, as well as an administrative burden too large, which leads to the increasingly frequent abandonment of these sectors by farmers.

In these conditions, Romania, through the tradition of sheep breeding and the geo-climatic conditions it has, can be a great source of products of this species, especially sheep meat https://www.europarl.europa.eu/doceo/document/A-8-2018-0064_RO.html.

CONCLUSIONS

In conclusion, the calculated economic efficiency indicators indicate that the young sheep meat has a low profitability and that it needs to be supported by subsidies.

However, the security index is quite high, and the margin of safety shows that the situation is comfortable, at least at the time of 2019.

Sheep are a species from which several products can be used, and meat is one of them. But this product is not in the consumption traditions of the Romanians, so it is necessary for the local farmers to turn all their attention to exploiting the opportunities regarding the export of sheep meat, with added value [2]. This thing, however, implies increasing the number of slaughterhouses intended for slaughtering sheep, in order for the export product to be chilled or frozen meat, also taking into account the requirements of customers in the countries of destination.

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