

THE ECONOMIC EFFICIENCY OF GOAT MILK PRODUCTION IN ROMANIA

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Abstract

The purpose of paper is to determine the approximate consumption of technological resources and related expenditures for the goat milk, so as to develop the budget of incomes and expenditures, estimate the economic indicators characterizing economic efficiency for the period 2012-2013. The working methods are technological specifications for goat milk, explanatory research - defining the main technical and economic elements regarding the elaboration of technological estimate and calculate the economic and technical indicators for the product. The results show that for the average milk production of 350 l/head, the unit cost is 1.7 RON / litre, by adding a rate of return of 28.7%, is estimated a production price at farm gate of 2.2 RON / litre. Standard gross margin per unit is 1.05 RON / litre, and the share of gross margin in raw product is 39.05%. The break even point for goat's milk with an average of 350 l is 406.12 RON, expressed in value and 184.6 l expressed in physical units. In conclusion, the efficient development of growing and exploitation activities of goats for milk production requires the provision of resources and their allocation and combining to be such as to lead to the achievement of greater quantities of milk, low cost per unit, by applying modern technologies and improved technical means.

Key words: milk, goat, indicators, technology, profitability

INTRODUCTION

Determination of economic efficiency in animal production is motivated primarily by the requirements of full satisfying the needs of the national economy with animal products, by developing the most modern methods of animal breeding and exploitation, and secondly, by reducing production costs and achieving of profit. Goats can contribute, along with other animal species to cover an important part of human food protein needs due to higher production potential, the property to multiply fast and low costs of investment and maintenance [3]. To represent better the level of economic efficiency achieved in raising goats for milk, were calculated a series of specific technical and economic indicators, whose determination in practice is of particular importance in the efficient management of production and taking decisions scientifically based for the productive activity.

MATERIAL AND METHOD

The work achieves determination of the approximate consumption of the technological resources and related expenditures for the goat milk, in the conditions of average yield of 350 liters / capita, so as to develop the budget of incomes and expenditures and estimate the economic indicators characterizing economic efficiency for the period 2012-2013. The working methods are technological specifications for goat milk, explanatory research - defining the main technical and economic elements regarding the elaboration of technological estimate and calculate the economic and technical indicators for the product in accordance with the specific calculation relations.

RESULTS AND DISCUSSIONS

The production technology of goat milk represents all the actions taken for creating the framework of full capitalization the animal production potential, with low costs per unit of product [1]. Materialization of production technology was achieved in the estimate technology (Table 1), that is an economic and technical document outlining:

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- production technology;
- total production;
- costs determined by them;
- the economic efficiency expressed by a series of indicators.

Table 1 Technological estimate for goat milk

SPECIFICATIONS	Average production 350 litres /head			
	M.U.	Quantity	Price lei /M.U.	Costs Lei /head /year
1. Fodder expenses				459.80
Cultivated concentrates + PVM	kg	110	1.38	151.80
Grains scraps	kg	50	0.50	25.00
Fibrous forages	kg	180	0.60	108.00
Roughage	kg	150	0.10	15.00
Green forages	kg	1600	0.10	160.00
2. Biologic material	head			60.00
3. Power and fuel, of which:				27.80
Power	kW/year	20	0.77	15.40
Fuel	l/year	2	6.2	12.40
4. Medicines and sanitary material, of which:	lei			13.00
Mandatory actions	lei			10.00
Actions needed	lei			3.00
5. Other material costs + water	lei			8.00
6. Supply quota	lei			13.32
7. Insurance	lei			4.80
TOTAL VARIABLE EXPENCES	lei			586.72
8. Labour costs	lei			80.00
9. General costs	lei			11.37
10. Credit interests	lei			0.00
11. Depreciation	lei			50.00
TOTAL FIXED COSTS	lei			141.37
TOTAL COSTS	lei			728.09

Thus, within the total costs, which are 728.09 lei / head / year, the highest rate is of variable expenses (80.58%), the rest are fixed costs. In the variable costs, 78.37% are feed costs, this showing the importance that farmers must give to goats feeding (Figure 1).

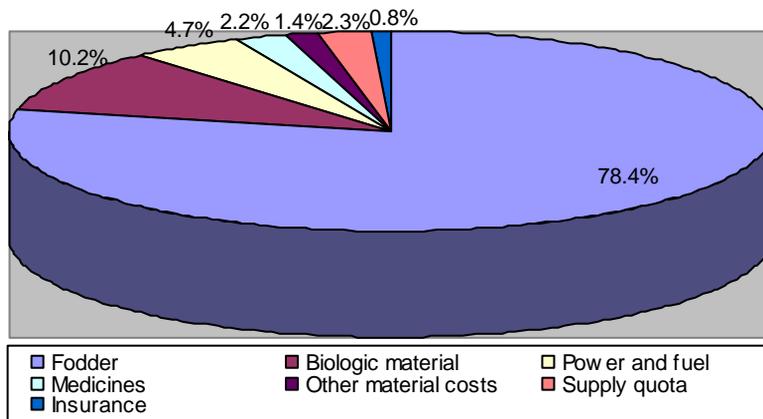


Fig.1 Structure of variable costs for goat milk

Foraging represents the essential element in the growth and exploitation technology of goats for milk production and has a decisive influence on the production and financial results of farm. The feeding costs were calculated based on average daily rations, respectively on fodder varieties included in the ration, exploitation life of the animal and of every variety of food prices. Biological material costs (10.2% of variable costs) are the equivalent of the replacement effort of goats for milk production and are determined by the price of young female for replacement, divided by the exploitation period. In determining power consumption per animal (4.7% of variable costs), it was taken into account the type and number of consumers, the installed capacity of each and, respectively, the number of operating hours. The growing and exploitation technology of goats for milk production is accompanied by a veterinary technology in which are included

mandatory treatments and needed treatments against diseases that can negatively influence the production, all constituting as costs in the estimate and representing 2.2% of variable costs. Other material expenses estimated (cost of maintenance and repair of machinery, protective equipment, sanitary veterinary instruments, buckets, forks, shovels, wheelbarrows, etc.) represents 1.4% of variable costs. Supply costs were estimated as a share of about 2.5% of the feeding costs, biological material and medicines costs. Animal insurance costs represent 8% of the biological material value. For determining the labour costs, it was started from the needs in labour force according to the norm of care, duration of exploitation and salary related. General expenses represent about 2% of variable costs. Depreciation expenses estimate the investment cost (shelter) per animal, shared to the runtime.

Table 2 Budget of goat milk

INDICATORS	Average production	
	350 l/head	
	Lei/head	Lei/l
A. VALUE OF PRODUCTION	900.00	2.571
A ₁ Of which, main production	770.00	2.200
B. SUBSIDIES	40.80	0.117
C. RAW PRODUCT	940.80	2.688
D. TOTAL EXPENDITURES	728.09	2.080
D ₁ Of which, for main production	598.09	1.709
I. VARIABLE COSTS	586.72	1.676
1. Feeding costs	459.80	1.314
2. Biologic material	60.00	0.171
3. Power and fuel	27.80	0.079
4. Medicines and sanitary veterinary material	13.00	0.037
5. Other material costs + water	8.00	0.023
6. Supply quota	13.32	0.038
7. Insurance	4.80	0.014
II. FIXED COSTS	141.37	0.404
Labour costs	80.00	0.229
General costs	11.37	0.032
Interest on loans	0.00	0.000
Depreciation	50.00	0.143
E. TAXABLE INCOME	171.91	0.491
Taxes and duties	27.5	0.079
F. NET INCOME + subsidies	185.2	0.529
G. TAXABLE INCOME RATE (%)	28.7	28.7
H. NET INCOME RATE + subsidies (%)	31.0	31.0
COST OF PRODUCTION	598.1	1.709
PREDICTABLE INTERNAL MARKET PRICE	770.0	2.200

The budget of revenues and expenditures (Table 2) can be considered as a correlate system of financial indicators, but also as a final document that expresses the efficiency of production activity, by cumulating revenues, expenses and results of production. It is conceived in a balance form, comprising the expenditure side and the revenue side and including also financial results - respectively profit.

The size of expenditures for the main production (milk) identifies with the cost of production per animal and dividing to average yield, was obtained production cost per unit of product (1709 lei). To make a profit, it is necessary production selling at a market price by at least 10% higher than the cost of production. In this case, adding a rate of return

of 28.7%, has estimated a production farm gate price of 2.2 lei / litre of goat milk.

In the Table 3, is presented the standard gross margin calculation for goat milk. Relation is as follows:

$$\text{Standard gross margin} = \text{Raw product} - \text{Variable costs}$$

The raw product (940.8 lei/head) includes the value of the main product (milk) - 770 lei/capita/year and secondary (the kid, hair and leather production, manure, reforms) - 130 lei/capita/year, plus subsidies - 40.8 lei/capita/year. Applying the above relation, it was obtained a standard gross margin of 367.40 lei/ capita/year, or 1.05 lei / litre of milk. The share of standard gross margin in the raw product is 39.05%.

Table 3 Standard gross margin - unitary

GOAT MILK	l/head	Price lei/l	1Euro=4,5lei	
			Lei	Euro
Average production	350	2.20	770.00	171.11
Secondary production			130.00	28.89
Raw product lei	per head	per litre	Euro/head	Euro/l
	940.80	2.69	209.07	0.60
Subsidies lei	40.80	0.12	9.07	0.03
Variable costs lei	573.40	1.64	127.42	0.36
Gross margin lei	367.40	1.05	81.64	0.23
Share of gross margin in raw product %	39.05			
Variable costs	Quantity kg/head	Price lei/kg forage	Total lei	Euro
Concentrates cultivated	110	1.38	151.80	33.73
Grains scraps	50	0.50	25.00	5.56
Fibrous forages	180	0.60	108.00	24.00
Roughage	150	0.10	15.00	3.33
Green forages	1600	0.10	160.00	35.56
Biologic material			60.00	13.33
Power and fuel			27.80	6.18
Medicines and sanitary material			13.00	2.89
Other material costs + water			8.00	1.78
Insurance			4.80	1.07
Total variable costs	x		573.40	127.42

In the Table 4, based on the estimations from technological estimate and from the budget of revenues and expenditures, are calculated the main indicators expressing the economic efficiency of goat milk production for an average of 350 litres per capita. Along with indicators on expenditures, revenues, cost, profit, rate of return, was calculated

breakeven, which is the minimum level of sales for the farm has no loss, no profit [4], ie revenues fully cover all costs, fixed and variables and milk production becomes profitable after this "critical point", in this case 406.12 lei value of milk production per capita, or an average of 184.6 litres of milk / head.

The operating risk rate is the indicator expressed as a ratio between breakeven in value and the main production value. Operating risk arising from fluctuations in

operating results depending on breakeven (dead point) [2] and in this paper, being over 20%, ie 53%, shows a comfortable situation of goat milk, the security index being of 47%.

Table 4 Synthesis economic indicators

No.	INDICATORS	M.U.	VALUE
1	Average production	l/head	350
2	Value of production	lei/l	2.571
3	Value of main production	lei/l	2.200
4	Total expenditures	lei/l	2.080
5	Expenditures for main production	lei/l	1.709
6	Variable costs	lei/l	1.676
7	Material costs	lei/l	1.545
8	Fixed costs	lei/l	0.404
9	Labour costs	lei/l	0.229
10	Unitary cost	lei/l	1.709
11	Unitary price	lei/l	2.200
12	Labour costs for 1000 lei total production	lei	103.9
13	Costs for 1000 de lei main production	lei	776.74
14	Profit or loss per unit of product	lei	00.491
15	Rate of return	%	28.7
16	Margin on variable costs (MVC)	lei	0.895
17	Margin on variable costs %	%	34.81
18	Breakeven in value units	lei	406,12
19	Breakeven in physical units	l	184,6
20	Operating risk rate	%	53,00
21	Index of security (Is)		0,47

CONCLUSIONS

By estimating the economic efficiency indicators of the goat milk, for an average of 350 litres/head, has been demonstrated that growing and exploitation of goats is profitable. For the period 2012-2013, estimated price of 2.2 lei/litre of milk, providing a rate of return of 28.7%, ranges within the limits of market prices in Romania for this product. Of course, the price received by the farmer is the result of the law of supply and demand and for goat's milk, are also obtained higher prices than this estimated. This work is in compliance with the domestic and international trend of increasing demand for milk and goat milk products. Practically, the results of this study can provide farmers from dairy goat husbandry information with which to make decisions regarding the organization and optimization of farm activities, business growth, income obtaining and profitability in the market.

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