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THE DYNAMICS OF THE ECONOMIC EFFICIENCY INDICATORS AT ALBA DE BANAT AND CARPATINA BREEDS

CHETROIU RODICA¹, CĂLIN ION²

Abstract: *The paper presents the research results on the evolution of indicators of economic efficiency in the milk production at Alba de Banat and Carpatina breeds, for a period of 3 years, during 2012-2014, at S.C. AGROFAM HOLDING Fetești. Indicators studied are: average yield, total output value, total costs, unitary cost, variable costs, labor productivity in terms of value, costs for 1,000 lei main production, profit per unit of product, rate of return, breakeven point in physical and value units, rate of operational risk. Thus, their values are entirely superior for Alba de Banat goats, compared to Carpatina. Also, due to the downward curves of the milk production in the succession of the years studied, the levels of indicators are largely decreasing from year to year, with limits that support the efficiency of production activity.*

Keywords: *milk, goats, indicators, efficiency.*

INTRODUCTION

The economic efficiency is one of the criteria for scientific substantiation of the decisions. In animal husbandry, the economic efficiency may refer to the whole branch, to the animal species or categories, or to products of animal origin. To determine the economic efficiency of the goats raising and exploitation activity from the two indigenous breeds - Alba de Banat and Carpatina, it was used a system of indicators that quantify both the allocation of factors to obtain the milk production and the effects resulting from these efforts, in order to develop an analysis and elaborate conclusions on the directions of increasing economic efficiency

MATERIAL AND METHOD

In the light of its applicative aspect, the efficiency (e) can be defined as a quantitative ratio between effects (E) and resources or efforts (R) spent to obtain them, or, in other words, achieving the maximum effect, with a determined level of consumptions, or reaching the determined effect with minimum consumptions:

$e = E/R$ max;
(maximizing the effects obtained per unit of resources allocated, consumed);

$e = R/E$ min;
(minimizing the resource consumption per unit of effect obtained).

The indicators are instruments for monitoring, assessment, forecasting and decision support, whose main quality is the capacity to illustrate, in a concise way, the complexity of the phenomenon studied. They were calculated using the formulas established in the specialty literature.

RESULTS AND DISCUSSIONS

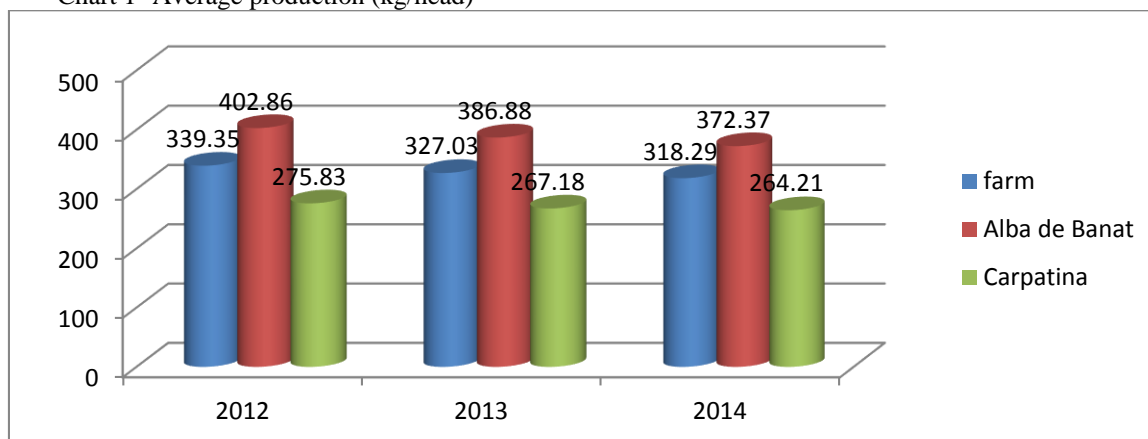
The indicator of the average production shows that its value is higher at Alba de Banat, followed of the average on farm and, last, of the average for Carpatina. Thus, the average production per farm decreased by 6.2% in the period studied; compared to the farm average, the milk production at Alba de Banat is up to 18.7% higher and at Carpatina is lower with the same rate. Between Alba

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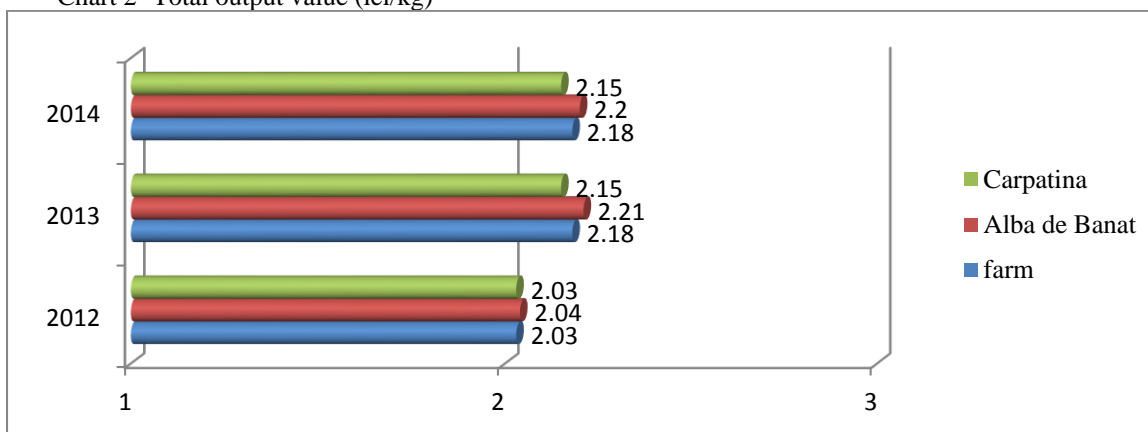
de Banat and Carpatina, there is a difference of 41- 46% in the level of production in the favor of the first breed (Chart 1).

Chart 1- Average production (kg/head)



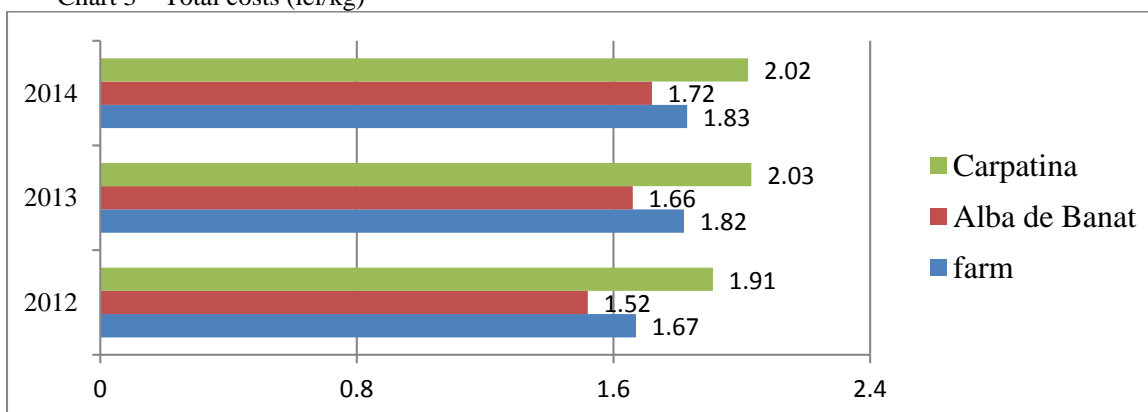
Total output value (per unit of product), consisting of the value of the main and secondary production value is the highest at Alba de Banat, with 0.5-2.3% over Carpatina, being, in the same time, by 0.5 to 0.9% higher than the average per farm and following a sinuous curve in the evolution of the 3 years, with a slight increase in 2013 compared to 2012, then remaining at the same level. (Chart 2).

Chart 2- Total output value (lei/kg)



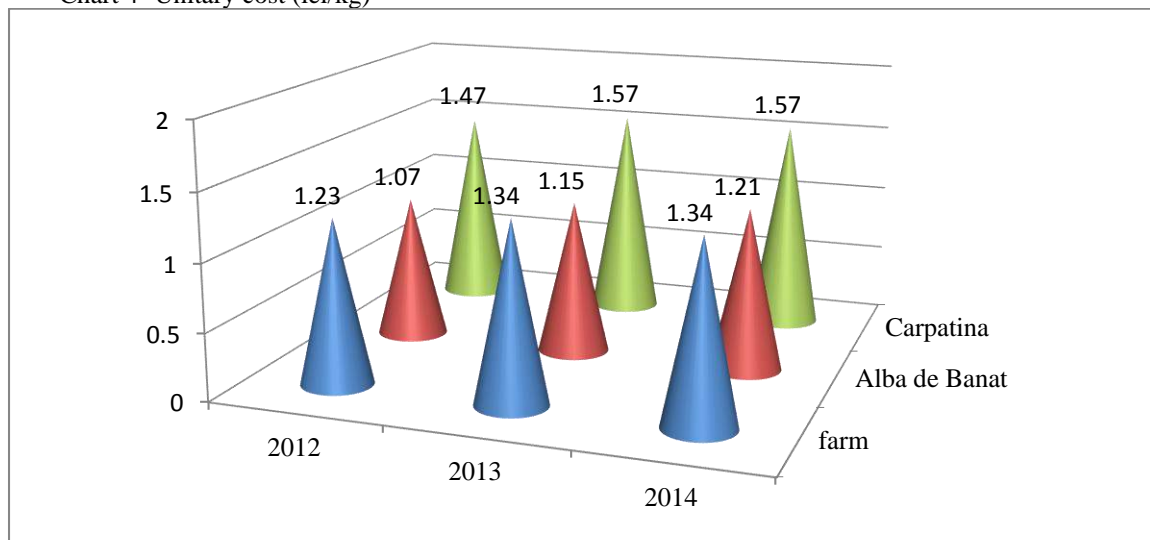
Total costs per kg milk were situated on an upward curve, between 1.67 to 1.83 lei, as average on farm, and by breed, the lowest expenditures were done for Alba de Banat, between 1.52-1.72 lei, from 14.8 to 20% lower compared to Carpatina (Chart 3).

Chart 3 – Total costs (lei/kg)



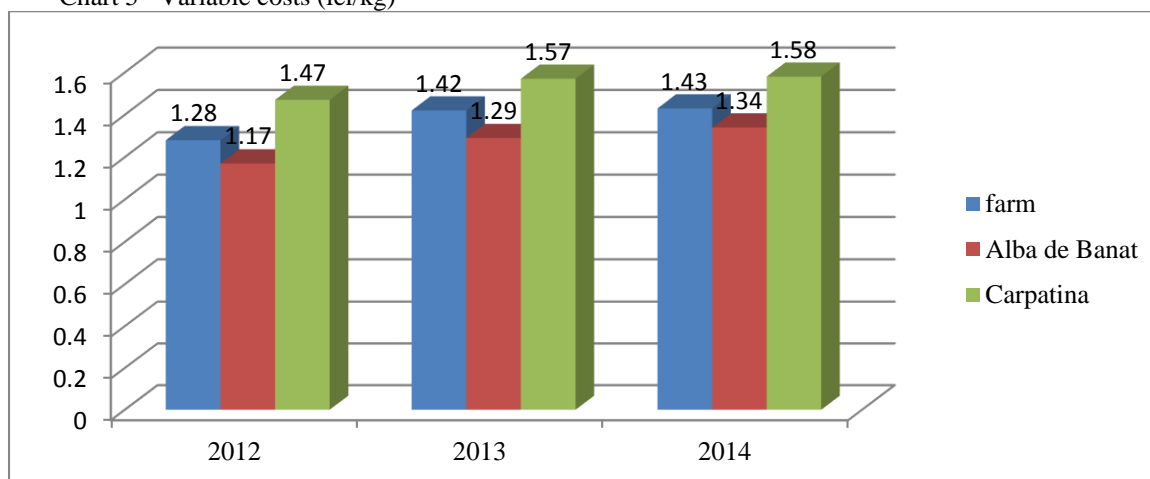
The unitary cost per kg of milk at the farm level has increased by 8.2% in 2013 compared to 2014, stationary in the third year, ranging from 1.23 to 1.34 lei / kg, the lowest being the unitary cost at Alba de Banat - 1.07 to 1.21 lei / kg. Due to the average yield decreased over the period studied, stopping the unitary cost in the third year is a result of the management actions taken in the farm for developing activity in terms of efficiency (Chart 4).

Chart 4- Unitary cost (lei/kg)



The indicator of variable costs has the highest value at Carpatina breed, with 15.2 to 20.4% higher than Alba de Banat, average per farm being 1.28 to 1.43 lei / kg milk. At Alba de Banat, this indicator is 6.3 to 9.2% lower than the farm average. Also, in the period studied, the variable expenses per farm have increased by 11.7%, while the average production decreased, affecting, ultimately, the profitability rate of activity (Chart 5).

Chart 5 –Variable costs (lei/kg)



The productivity is the efficiency that the production factors are combined and used with in the production process, being a qualitative indicator of economic performance, whose evolution reflects, in a summary form, the technologies and organization of production improvement, labor qualifying and training.

The labor productivity in terms of value at Alba de Banat is superior to Carpatina and to farm average, by 17% and increased by 6.1% in the period studied (Chart 6).

Chart 6- Labor productivity in value (lei/man-hour)

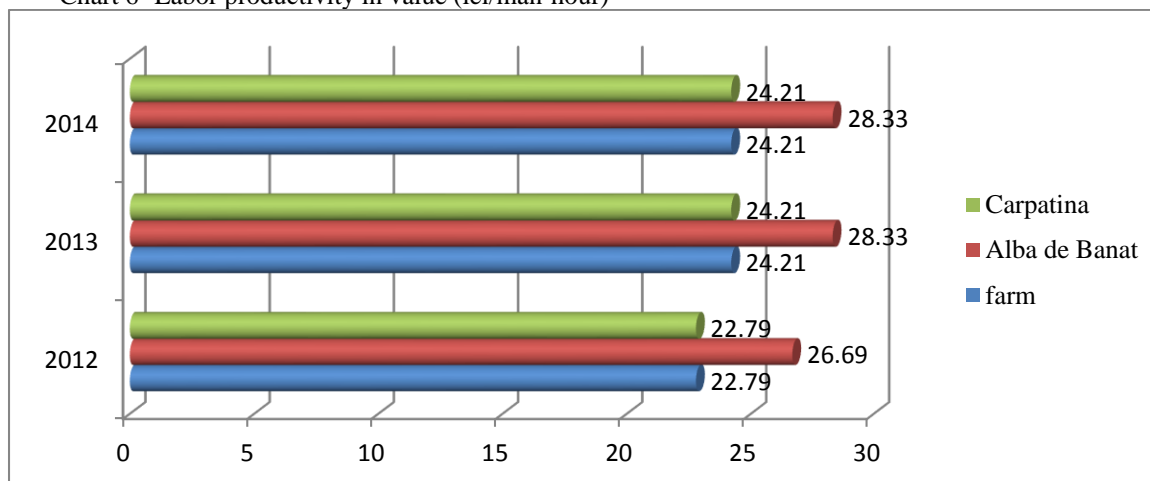
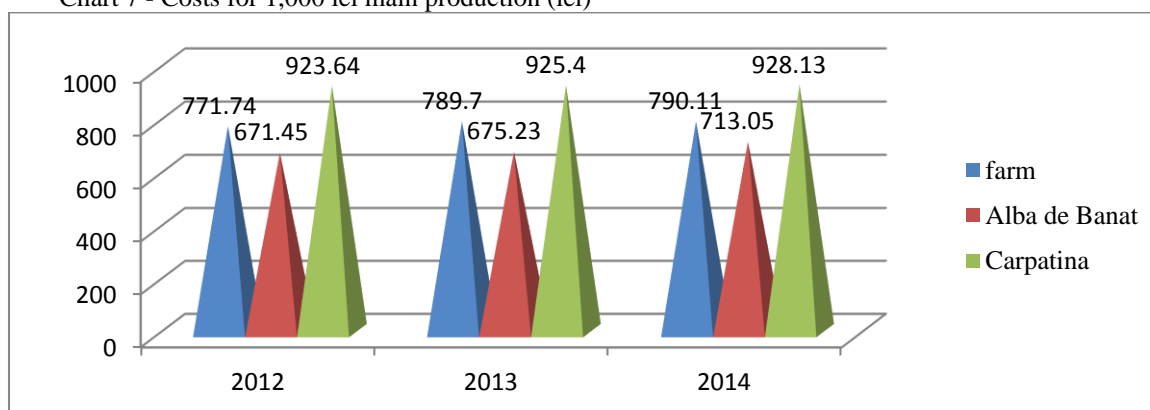


Chart 7 illustrates another indicator of efficiency – the costs for 1,000 lei main production, indicating that the lower costs were at the goats of Alba de Banat, followed by the farm average and, last, by Carpatina. Thus, the indicator value at Carpatina is 30 to 37.5% higher than at Alba de Banat, showing that the allocations of factors and costs are shared more effectively if there are high levels of production.

Chart 7 - Costs for 1,000 lei main production (lei)



The calculations also show that profit per kg milk is highest at Alba de Banat (0.49 to 0.55 lei) versus Carpatina breed, where is only 0.12 to 0.13 lei / kg of milk, per farm average being 0.36 lei / kg milk (Chart 8). Consequently, the net rate of return is superior to Alba de Banat (49.27 to 41.19%), compared to Carpatina (16.37 to 15.18%), but in the analyzed period, was on a declining curve, due to continuous decrease of milk productions (Chart 9).

Chart 8 - Profit per unit of product (lei/kg)

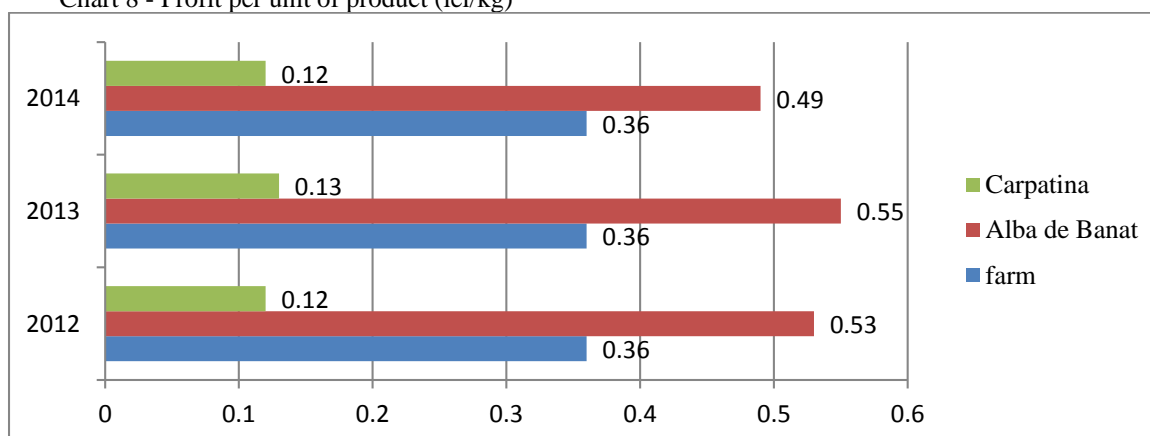
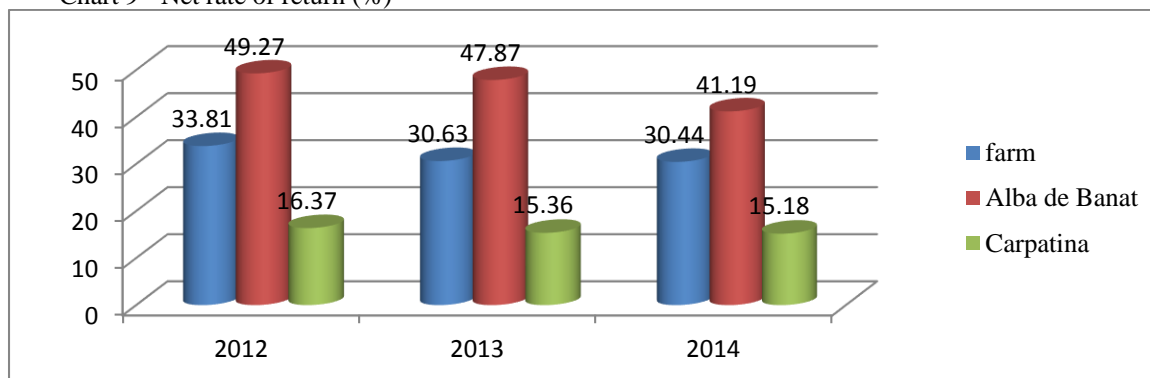


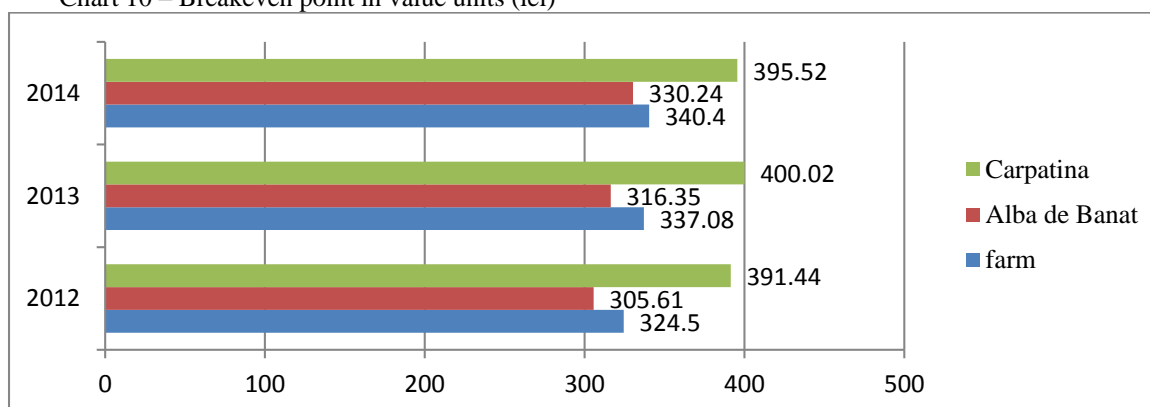
Chart 9 - Net rate of return (%)



It is important to mention that, without valuing the secondary production (kids, youth, reform), even if the farm receives subsidies, farm operation is not profitable, because the total costs per kg milk are higher than the income derived solely from delivering milk.

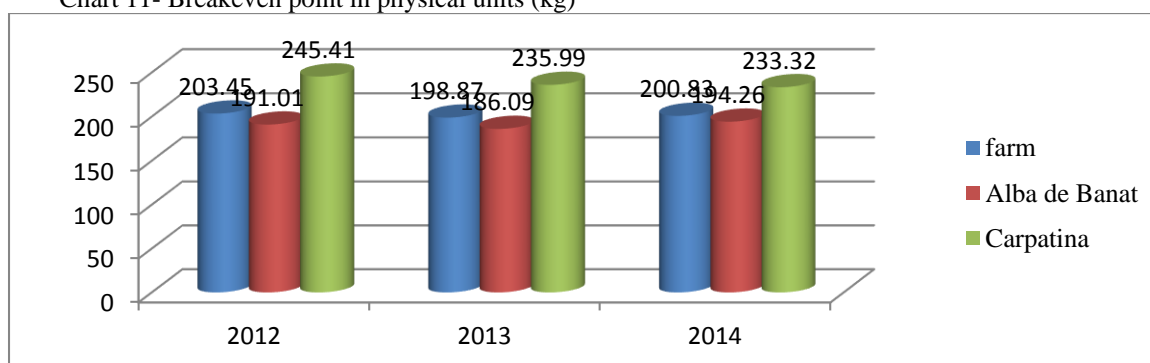
Calculations show that the value of the lowest breakeven point is at Alba de Banat (305.61 to 330.24 lei / head) compared to Carpatina (391.44 to 400.02 lei / head), meaning that over these values of sold production per animal, the activity at this breed starts to produce profit. We note that at Carpatina breed, as the level of production is less compared to Alba de Banat, the breakeven point has higher values, harder to reach, with greater efforts. On farm, the breakeven point is 324.5 to 340.4 lei / head (Chart 10).

Chart 10 – Breakeven point in value units (lei)



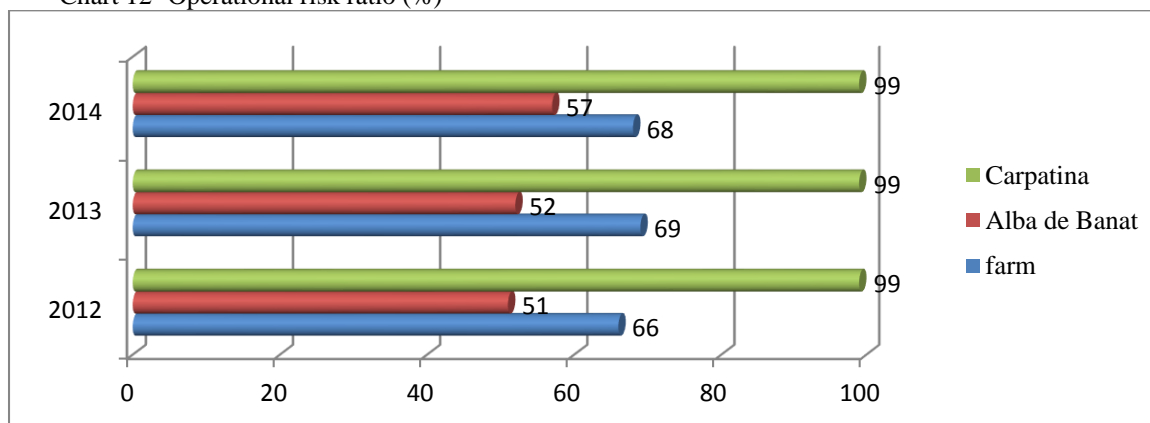
Also in physical units (kg), the same indicator has the lowest value at Alba de Banat (191.01 to 194.26 kg), representing the minimum amount of milk sold per head, below which could record losses. By comparison, the breakeven value at Carpatina is 233.32 -245.41 (with 20-28% higher) (Chart 11).

Chart 11- Breakeven point in physical units (kg)



The risk of activity depends not only on general factors (sale price, cost, revenues) but also on the level of fixed costs, the same level of fixed costs being better covered by a higher level of incomes (given that the fixed costs must be paid even without sales) (Vintilă Georgeta, 1999). On the other hand, the breakeven level is lower, the operating risk is lower. The operational risk ratio as the ratio between breakeven in value and the main production value, illustrated in Chart 12 shows that, in the present study, the highest risk is for Carpatina breed (99%), the value being 51-57 Alba% for Alba de Banat. On farm, the average risk is 66-69%.

Chart 12- Operational risk ratio (%)



CONCLUSIONS

The research results presented in this paper indicate that the indicators of economic efficiency in the production of goats' milk are totally superior to Alba de Banat versus Carpatina breed. Also, due to the downward curves of milk production in the succession of the years studied, the levels of indicators are largely decreasing from year to year, but within the limits of economic efficiency.

In the conditions of reduced milk productions, the costs per unit of output increase and profitability declines. In the study period, the levels of indicators have shown that the decreased milk productions, for various reasons, did not leave indifferent the farm management, taking measures to decrease production costs, reflected, for example, by the unitary cost indicator, that had maintained the same level over the last two years analyzed. Stopping the production level is an urgent need of measures to be taken, by implementing the levers at the disposal of technological engineers: breed selection, intensive breeding, proper feeding, ensuring technological factors and microclimate.

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