

**ECONOMIC PROFITABILITY OF MILK PRODUCTION AND POSSIBILITY OF
ORGANIC SYSTEM DEVELOPMENT ON PEŠTER REGION FOR RURAL
DEVELOPMENT CAUSE**

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Abstract

This paper analyzes the dynamic of expenses structure and basic economic indicator in milk production of Pešter area in conventional conditions of production and possible price of produced milk in system of organic production. Although the investment in milk production is least profitable, the main strategy of Pešter population survival is primary milk production. Considering this concerns hugely pasture space and large interest for milk production in organic system in local government as well as residents of this area, this paper presents some guidelines related to this type of production as a framework of rural development in southwest part of Serbia. Based on entire study reviews, it was concluded that the production of milk in Pešter was full of structural problems. Development of organic livestock in Pešter involves serious investment. Profitable milk production from organic systems depends not only on reduced costs while increasing quality, but also of customers purchasing power, culture and habit of healthy purchasing, trained personnel and similar. Reduced production volume manufacturer will be compensated by higher selling price and various state incentives.

Key words: *milk, production, organic, conventional, rural development*

Introduction

According to the results of the IFCN (International Farm Comparison Network)¹, in the long terms is expected a continuing increase in the world price of milk. However, in the short run, increasing price volatility is expected as a result of extremely low inventories that are available right in the event of a shortage. During 2014th is expected for the volume of milk production to meet demand and relaxing prices. In the next decade is expected to increase production by an additional 230 million tons, which will maintain the balance with the growing demand. The demand for dairy products increases under the influence of two factors: population and increasing per capita consumption in countries with rising living standards. Milk production is growing only in some countries with growing economies mainly the number of farms.

Experiences from countries where organic livestock farming already has a longer tradition shows that organic farming organization of ruminants, whose nutrition is based on pastures and solid food (cattle, sheep and goats), is not a bigger problem. In the production of the food Serbia has all conditions and excellent chance. Serbian Chamber of Commerce has proposed to declare all its space for the area without genetically modified products, i.e. the region where developed organic farming is and where is produced healthy safe food.

¹Established in 1997, is a global network of researches in the field of economics in milk production from more than 90 countries that produce 98% of world milk production. Foci of IFCN network in world milk production are the most important elements in the supply chain of dairy products: production costs, resource use, farm management results, emissions and political challenges (agricultural policy)

This study includes dairy sector of Pešter. The region grows about 67.447 sheep and more than 52.608 head of cattle, and by strategic documents with relatively small investments livestock could be doubled. The aim of this study is to present the main issues of introducing organic livestock production system in the same area.

Materials and methods

Besides analytical synthetic methods, by theoretical analysis is defined the meaning of concepts, theoretical framework of this study and analysis of the relevant literature. The research was based on the primary data as well as the secondary data source. Based on the obtained results, we can design a strategy of rural development based on appropriate utilization of the rural capital areas. The overall objective of sustainable development is to create economically viable and environmentally acceptable milk production, which would be the basis for rural development and the basis of the existence of the rural population in studied region. Problems in preparing calculations of milk production are different data, and therefore should be continuous efforts to further improvement of the source data quality.

Results and discussion

Daily people give more importance to organically produced food, in a natural biologically expedient manner. The main reasons for the expansion of organic farming in the world are the results of medical studies that indicate an increase in health risks when consuming food units originating from intensive conventional production. WTO data indicate that pesticide poisons about three million people each year. Food produced under the principles of organic agriculture is safe from the presence of any artificial synthesized substances as well as pesticides.

Characteristic of studied region

Observed area is one of the most economically underdeveloped areas of Serbia. It has a huge pasture and meadow areas which are traditionally used for livestock production, and livestock production has traditionally been an important source of household income. Livestock production in the region primarily involves cattle and sheep breeding (67.447 sheep and more than 52.608 head of cattle). The area has great potential for the development of organic livestock, particularly in organic farming of ruminants. Organic animal husbandry and agriculture are actually the only possible way of development of poor regions. Pastures in the region have low yield which results in many years of unplanned use and constant degradation of grasslands. With some ameliorative measures yields would be significantly increased. Compared with the largest dairies in Serbia, studied dairies have relatively short supply lines which transport costs are reduced. Most households have one to three cows, but they are more numerous and considerably younger than the households in Central Serbia and Vojvodina. Weaknesses of areas for the organic food production are manifested through the lack forage, poor modernization and introduction of technological solutions, of seasonal character in livestock production, poor infrastructure, fragmentation of property (from 1.01 to 3 ha), lack of processing capacities, lack of financial resources, high level of illiteracy in the rural population and the lack of purchasing stations for livestock products. If weaknesses were lined up hierarchical, certainly the priority would be given to poor infrastructure. Chances for rehabilitation and sustainable development of organic livestock production can be seen in international development and national rural development programs, increased support of local governments, increasing the processing capacities and support to existing ones, better developed capital markets and similar. The most important internal forces are reflected in rich livestock fund, rich tradition in milk and dairy products production, a large number of young working age population, large pastures and meadows and non treated surfaces by synthetic chemicals. The analysis of the factual situation speaks that the weaknesses overcomes strength, chances overcome threats, and such internal external matrice supports the development strategy of the sector.

The calculations of gross margin for milk production in conventional production

The goal of each production, including farming, is to maximize the total gross margin. Variable costs are those which vary in amount depending on the size of production. In livestock production variable costs usually include: livestock feed, water, veterinary services, medicines and similar. Fixed costs are those which exist on the farm for one year, regardless of whether it does business or not.

Calculation of gross margin, presented in the table refers to the production of cow's on the farm from Pester which owns 10 dairy cows of Simmental breed, with average annual milk production of 4500 liters, overhaul of heifers from their own herd of the number of received calves is 0.8, and the excreta of cows is 0.2. It should be noted that none of the calculations is perfect (rarely are calculated amortizations of milking and facilities). During data collection purchase prices of milk were from 32 - 35 rsd¹.

Table 1. Calculation of gross margin for milk production in conventional production

| Income | | Amount | Measure unit | Price (RSD) | Amount (RSD) |
|-----------------------|-----------------------------------|--------|----------------------|-------------|------------------|
| 1. | Milk sold to dairy | 27.000 | l/year | 32 | 864.000 |
| 2. | Milk sold for consumption | 3.650 | l/year | 45 | 164.250 |
| 3. | Milk for calves | 3.750 | l/year | 32 | 120.000 |
| 4. | Milk for household | 10.600 | head of cattle | 32 | 339.200 |
| 5. | Calves | 10 | head of cattle | 20.000 | 200.000 |
| 6. | Livestock manure | 150 | t | 1.500 | 225.000 |
| 7. | Subsidies | 10 | rsd/ head of cattle | 20.000 | 200.000 |
| A | Total income (1 -7) | | | | 2.112.450 |
| Variable costs | | | | | |
| 1. | Concentrated fodder | 21.900 | kg | 28,00 | 613.200 |
| 2. | Fodder | 91.250 | kg | 7,32 | 667.950 |
| 3. | Litter | 18.250 | kg | 2,00 | 36.500 |
| 4. | Veterinary services | | | | 80.000 |
| 5. | Insemination | 10 | dose/ head of cattle | 2.000 | 20.000 |
| 6. | Water | | rsd/ head of cattle | 900 | 9.000 |
| 7. | Services | | | | 200.000 |
| 8. | Supplies | | | | 20.000 |
| 9. | Interest on variable costs | | | | 102.165 |
| B | Total variable costs (1-9) | | | | 1.748.815 |

Based on composed calculations was made a summary of the costs and some additional indicators of production. The most important item in the cost structure are fodder (39.15%) and concentrated fodder (35.94%), labor costs (11.72%) and veterinary services (5.8%). Food participates with 77% of the total cost of milk production. Production efficiency is 1.05 and safety level is 32.08, which clearly demonstrates that this type of production is on the verge of profitability, as is the case with many production in Serbia

What would be the price of milk produced in organic systems? Price of organic milk is 25-40% higher than the price of milk obtained in the commercial production. According to the analysis of Sredojević (2002), calculations on milk production in organic process shows that such milk has reason to be more expensive by 40 per cent from the ordinary one. As any manufacturer, dairy farmers are also primarily interested in profit.

¹ Serbian dinar

Table 2. Summary of costs and performance indicators

| | Income | Amount in RSD | % participation |
|-----|---|----------------------|------------------------|
| 1. | Milk | 1.487.450 | 70,41 |
| 2. | Calves | 200.000 | 9,47 |
| 3. | Livestock manure | 225.000 | 10,65 |
| 4. | Subsidies | 200.000 | 9,47 |
| A | Total income (1-4) | 2.112.450 | 100,00 |
| | Variable costs | | |
| 6. | Concentrated fodder | 613.200 | 35,06 |
| 7. | Fodder | 667.950 | 38,19 |
| 8. | Litter | 36.500 | 2,09 |
| 9. | Water | 9.000 | 0,52 |
| 10. | Insemination | 20.000 | 1,14 |
| 11. | Veterinary services and medicines | 80.000 | 4,57 |
| 12. | Supplies | 20.000 | 1,14 |
| 13. | Labor services | 200.000 | 11,44 |
| 15. | Interest on variable capital 10% | 102.165 | 5,85 |
| B | Total variable costs (6-15) | 1.748.815 | 100,00 |
| C | Gross margin, coverage margin (A –B) | 363.635 | |
| D | Estimated fixed costs (15 % from variable costs) | 246.903 | |
| E | Total costs (B+D) | 1.995.718 | |
| F | Profit (A-E) or (C- D) | 116.732 | |
| G | Efficiency of production (A : E) | 1,06 | |
| K | Profit rate (C : E) x100 | 18,22 | |
| H | % of margin participation cover in operating expenditures (C : A) x 100 | 17,21 | |
| I | Breakpoint of profitability (D : H) x 100 | 1.434.648 | |
| J | Level of safety (A – I): A in % | 32,08 | |

For this reason, according to Sredojević (2002), is very important for comparison of cost per unit of resulting products to be done, ie their costs in conventional conditions and the costs of products in organic conditions. Based on the calculation the level of variable costs and differential calculations in milk production, the lowest prices that are economically viable for producers are established. Of course that other factors also affects the selling price, and such are: supply and demand, the purchasing power of consumers etc. Gross margin is the difference between total revenue and total variable expenses expected in production (in agriculture is usually a period of one year). The milk cost from conventional production, according to data from the calculation is:

$$Mc = (1.995.718 - 625.000) : 45.000 = 30,46 \text{ rsd}$$

Based on the calculation cost of 1 liter of milk produced in the conventional production methods and research results of Sredojević (2002), the cost of organic milk production would be by 40% higher, or 42.64 rsd.

How to reduce variable costs? From an organizational point of view, in order to efficiently and productively production, it is necessary to divide cows according to stage of lactation on product groups. Division of cows in production groups is necessary for, according to the needs of each group, a suitable meal should be put together. Exposed calculations clearly

show that in the structure of variable costs, the highest percentage are food costs. Proper eating habits will not only be able to reduce the costs meal, but also the costs of treatment. In the stables with associated system of rearing, every cow gets an individual meal, but with freestyle of keeping when in a group are held together highly productive and low productive cows, it is not possible for each cow separately to provide a desired meal. Considering this is necessary to separate cows by product groups.

Conclusion

The aforementioned milk production in organic system was chosen for study for it is mentioned as an important development resource of the region examined region, regardless of the limits to their exploitation. Pester dairy sector is very important and has significant potential for further development, primarily because it includes a large number of manufacturers and thereby contributes significantly to rural development of the region. This sector is due to the quantity and nutritionally significant consumption, important for the food security of the country, but in the case of poor quality control and degradation of sanitation can represent a serious risk to human health. Sector, which is the most demanding by standards to be met when joining the EU may be one of the major obstacles in joining the Serbian agriculture to common agricultural policy of EU. Development of organic livestock in Pester involves serious investment. These investments are primarily related on investment in human capital development in rural areas, the development of transport and telecommunication infrastructure, water supply network, the establishment of new processing capacities, various ameliorative measures, improvement of breed composition, formation of purchasing stations, supporting clusters, associations and cooperatives, raising silo facilities etc. One of the main ways to increase profitability in organic livestock production is the reduction of operating costs that manifest through the reduction of cost per unit of product, or service. It is important to emphasize that this is about lowering costs while increasing quality. Except the aforementioned facts, should be noted that the profitability of organic production depends on the purchasing power of customers, culture and habit of buying healthy, trained personnel and etc. Reduced production volume manufacturer will compensate for higher selling price and various state incentive measures. The new Law on incentives in agriculture and rural development, adopted January 30th 2013., minimum amounts of incentives were established, and the Government of the Republic of Serbia, by its Decree on the allocation of subsidies in agriculture and rural development, has determined the maximum amounts. Incentives for organic production increased by 40% compared to conventional production incentives. Bearing in mind the potential possessed by this region, the dairy industry may be the backbone of the agricultural and rural development in the region and Serbia itself.

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