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Interests in dairy ranches development in Serbia: A device for neediness decrease in provincial zones

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Abstract

Production is one of the most important economic activities in Serbian rural areas, which faces significant problems regarding unemployment and poverty. To increase income and employment, family farms have to enlarge dairy operations, modernize production process, buildings and equipment. The goal of this paper is to determine economic effectiveness of investments in two possible dairy farm developing models. It was supposed that farmers invested in enlargement of dairy farms from 30 to 100 cows herd. It was determined that investments in both production types were economically profitable. To determine which production type is more economically acceptable in risky environment, scenario analysis method was used. In risky circumstances, investments in farms specialized in milk production had greater expected net present value and were less risky than investments in combination of milk, heifers and steers production. In the paper, agricultural policy measures necessary to support such family farms developing model were recommended.

Keywords: Dairy production, rural areas, investments, poverty, scenario analysis, risk.

INTRODUCTION

Poverty and unemployment are the most important problems in Serbian rural areas. Development of agricultural production (primarily dairy production) could be used as a tool for increasing employment and raising income level of rural areas inhabitants. Therefore, it is necessary to analyze the present condition of Serbian dairy production and possibilities for its improvement.

Dairy production in Serbia is conducted primarily at small family farms. Such farms mostly possess less than 10 cows, because an average farm size in Serbia in a sense of available land is 2.42 ha (according to the last population census conducted in 2002). In 2002, there were 778,891 family farms in Serbia. Nevertheless, only 1% of them possessed more than 20 ha of land. At the same time, the farms which had more than 20 ha of land possessed a bit less than six cows.

According to the available statistical data, a total number of cows in Serbia declined from 1,090,000 in 1980 to 530,000 in 2010 (by 51.38%). Milk production volume has been at the same level (approximately 1,500,000,000 L) for a number of years, but beef production has been decreasing simultaneously from 147,000 tons in 1980 to only 96,000 tons in 2010 (by 34.69%). The significant reduction of cow number and beef production is primarily caused by the unfavorable economic position of cattle breeding in Serbian economy. Dairy producers for numbers of years face low milk and beef prices. While the milk and beef prices have decreasing tendencies, the input prices for fodder production (seed, fertilizers, pesticides, fuel, etc.) have been permanently increasing.

There are also problems regarding the export of beef into the European Union as the most important Serbian export market. Although, there is a possibility to export significant amount of beef into the European Union under favorable conditions, such an opportunity has not been exploited yet. The reason is inappropriate equipment and the procedures observed in Serbian slaughterhouses. Only few slaughterhouses in Serbia possess adequate HACCP standards, and have the permission to export beef into the EU countries. However, capacity of these slaughterhouses is too small to fulfill the export quotas.

Due to the global warming, the droughts have caused great variations in fodder yields and prices, which make

profit in dairy production almost unpredictable. Possibilities to cope with drought are reduced, due to high prices of irrigation equipment, so that majority of dairy producers do not posses irrigation equipment at all.

Small family dairy farms in Serbia are not specialized only in dairy production. They also produce other commodities, such as: cereals, industrial plants, alfalfa hay, etc. Farmers often make a mistake in structure of the meal for cows, because they mostly use feed based on the alfalfa hay instead on the corn silage. In such a way farmers have high production costs and cannot be competitive with the other European dairy producers.

One of the family dairy farm drawbacks is a type of their barns and equipment. Because of a small number of cows per farm, barns are inappropriate; they have inefficient ventilation system, and consequently unsatisfactory microclimate, which brings a negative influence on the animal welfare. Because farmers use tied stall barns, some significant health problems do appear, primarily mastitis and reproduction problems. At Serbian family farms, inappropriate milking equipment does not provide a sufficient hygiene level because milk has contact with the polluted air in barns, and is frequently contaminated by bacteria. Due to outdated barns and equipment, dairy production is extremely demanding in a sense of labor.

In recent years, Serbian milk processors initiated enlargement of family dairy farms. There are two reasons for such decision of dairy processors. First reason is the fact that increase of raw milk quality is a precondition for the competitiveness of Serbian processors on the international market. Second one is attempting to reduce milk transportation costs because, at the moment, dairy processors collect milk from many small producers in a large territory. Such decision is in accordance with the results gained by Bošková (2009), concerning economically efficient length of milk collection journey.

Forcing farmers to enlarge dairy operations, processors stimulate them by paying higher price for high quality milk, as well as for larger milk quantities. In order to remain competitive, farmers have to increase the number of cows, which is connected to the introduction of modern buildings (free stall barns instead of tie stall barns), purchase of modern equipment (milking parlors), and improvement of feeding practice (Radivojević et al., 2008). According to Pereira et al. (2003), a poor decision during dairy expansion can result in serious financial difficulties even to the point of making the farm economically unviable.

Since big dairy farmers in Serbia mostly possess 20 to 30 cows at the moment, the objective of this paper is to determine the economic efficiency of investments in the enlargement of existing dairy farms in Serbia from 30 to 100 cows, in risky circumstances. Therefore, capital budgeting methods combined with scenario analysis were used in the paper.

The second goal of the paper is to examine which dairy production type is more acceptable for family farms. The basic assumption is that during the enlargement process, some farmers remain specialized only in milk production (milk is the most important product). In further analysis, this production type will be named type 1. Serbian farmers usually decide on this production type, because it requires lower investments in buildings and equipment. Other farmers decide to diversify activities, so that milk is still the main product, but heifers and steers are very important elements of production. In further analysis this production type will be named type 2.

Research in Serbia and other countries show positive results of investments in big dairy farms. The first analysis of the economic efficiency of investments in cattle production at family farms in Serbia (for various farm sizes and production types) was done by Krstić and Tomić (1993) and Krstić et al. (1995). It was determined that investments in larger family farms led to higher internal rates of return (IRR). For the purpose of estimating value of cows at dairy farms, Tica (1993), and Gogić (1995, 1996) applied discounted cash flow approach.

Popović (2005) analyzed profitability and production costs at dairy farms in Serbia which possess between 10 and 100 cows. Analyzing investments in dairy farms with 15, 25 and 50 cows, Ivanović (2008) established that investments in the production with a larger number of cows are more economically efficient. Using certainty equivalent method, Ivanović et al. (2009) determined that an investment in 50-cow farm is economically efficient even in risky environment.

In Turkish circumstances, Demircan et al. (2010) determined that increase of herd size has positive impact on pure technical efficiency of family dairy farms. On the other hand, research of dairy farms in New York area conducted by Tauer (2001) showed that efficient small dairy farms (50-cow farms) can be cost competitive with the efficient large dairy farm (500-cow farm). Bailey et al. (1997) evaluated the impact of economies of scale on profitability of alternative dairy unit sizes in the Midwest. A multidisciplinary team was assembled and completed production plans for 150, 300, 500, and 1000-cow units. The results indicated that only the 500 and 1000-cow dairy units would be economically viable for start-up operations in the Midwest. St-Pierre et al. (2000) analyzed alternative investments in fixed assets at dairy farm. Authors concluded that it is necessary to use many indicators (not only financial ones) to determine an adequate investment alternative.

Comparison of the economic efficiency of investments in dairy expansion and investment in grain storage on the basis of net present value (NPV) was conducted by Ehmke et al. (2004). A similar methodology was used by Hyde et al. (2007) who used net present value and sensitive analysis to choose an appropriate robotic milking system.

Scenario analysis is one of the methods that could be used to solve similar economic problems. Kopeček et al.

Table 1. Investments for dairy operation expansion.

Investments in dairy expansion	Type 1 (EUR)	Type 2 (EUR)
Buildings	210,000.00	270,000.00
Equipment	100,000.00	110,000.00
Cows	105,000.00	105,000.00
Total investments	415,000.00	485,000.00

(2009) analyzed various scenarios of slaughter cattle profitability in Czech Republic, depending on type of economic support. Becker et al. (2007) analyzed the feasibility of investments in small -scale dairy processing facilities. They analyzed various production possibilities (scenarios), using net present value and internal rate of return. Authors conducted sensitivity analysis, but did not calculate expected net present value and coefficient of variation. Scenario analysis modeling described by MacLeod et al. (2007) is comprised of three major steps: benchmarking (the existing farming systems have been defined from multiple perspectives), model assembly and whole-of-system analysis. A possible use of simulation modeling for various purposes (agricultural production, rural development) was also analyzed by Thornton and Herrero (2001), Fuller-Love et al. (2006) and Reilly and Willenbockel (2010).

MATERIALS AND METHODS

The analysis is based on a model of family dairy farm in Serbia, which has been made on the basis of data collected in survey conducted on the area surrounding the city of Belgrade. The survey included 42 family farms which are considered to be large milk producers in Serbian conditions. These farms possess between 10 and 100 milking cows. All observed farms produce milk for the biggest Serbian dairy processor (Imlek).

Additional data for this research were collected during the interview with the management of Imlek. This processor collects milk from over 14,000 family dairy farms in Serbia. The company is also regional leader in dairy processing and owns factories in other states in the region (Montenegro, Bosnia and Herzegovina, and well as Former Yugoslav Republic of Macedonia).

In this analysis, data provided by System of Agricultural Market Information of Serbia (STIPS database) were also used. The system is established and maintained by Serbian Ministry of Agriculture, and supported by the United States Department of Agriculture.

Capital budgeting methods (net present value and internal rate of return) were used so as to determine the economic effectiveness of investments in dairy farm enlargement. It is necessary to use adequate investment appraisal techniques for such business decisions. A recent research conducted by concluded that the use of non-sophisticated investment appraisal techniques has a negative impact on the profitability of small firms.

Risk analysis is a methodology that assumes that the factors determining the profitability of a project are dependent on future events, which cannot be foreseen precisely (Demir and Bostanci, 2010). Scenario analysis method has been used in the paper to determine expected net present value, standard deviation and coefficient of variation. On the basis of these indicators, it is possible to determine which of the enlargement possibilities (production types) is more economically efficient in risky circumstances. Scenario analysis methodology described by Barry et al. (2000) and Brigham and Gapenski (1997) was used to determine the aforementioned risk assessment indicators.

RESULTS AND DISCUSSION Basic

assumptions for the analysis

Some important basic assumptions for the farmer who possesses 30 cows are the following:

i. The farmer is specialized in milk production (type 1),
ii. Replacement herd is raised at the farm,
iii. Surplus of heifer calves (which are not needed for replacements) and all bull calves are sold to the other farmers at the age of seven days,
iv. Farmer cultivates (possesses or rents) enough land to satisfy needs for 30 cows, but not for 100 cows. The purchase or rent of additional land and machinery is very expensive and complicated; therefore, it is assumed that all fodder for additional 70 cows is bought at the market. Thus, fodder costs are calculated using market prices.

Taking into account the characteristics of the afore-mentioned production types, investments (cash outlays) needed to expand dairy operation from 30 to 100 cows are shown in Table 1. It is assumed that economic life of the project is ten years, because it is equal to the length of the loan. Knowing this, it is possible to estimate sal-vage value (terminal value) of the investments. Salvage value includes the value of additional fixed assets (cows and buildings) after 10 years. It is estimated that the value of additional equipment equals zero (because its useful life is estimated at 10 years). Salvage value is calculated in the following way:

i. After 10 years 70 cows could be sold on the market at average price 1,000 EUR per head,
ii. After 10 years additional buildings could be sold to other farmers at 2/3 of purchasing price (depreciation period for buildings is 30 years),
iii. Taking into account salvage value of cows and buildings, total salvage value of investment is 210,000 EUR for production type 1 and 250,000 EUR for type 2.

Having in mind that Serbian farmers usually finance investments using combination of equity funds and bank

Table 2. Total cash revenue generated by dairy expansion (type 1).

Year	Total revenue from additional 70 cows (EUR)	Additional revenue from existing 30 cows (EUR)	Total revenue (EUR)
1	139,020.00	9,000.00	148,020.00
2	140,070.00	9,075.00	149,145.00
3	141,120.00	9,150.00	150,270.00
4	142,170.00	9,225.00	151,395.00
5	143,220.00	9,300.00	152,520.00
6	144,270.00	9,375.00	153,645.00
7	145,320.00	9,450.00	154,770.00
8	146,370.00	9,525.00	155,895.00
9	147,420.00	9,600.00	157,020.00
10	148,470.00	9,675.00	158,145.00

loans, it is assumed that investments are financed 40% by equity, and 60% by subsidized loan (for such loans the state subsidizes the part of interest to bank). Equity opportunity cost is estimated at 4.5%, while interest rate for subsidized loan is 7%. Therefore, weighted average cost of capital used in this analysis is 6%. If farmer decides to maintain the present production type (type 1), additional revenues which are induced by dairy expansion will comprise of:

i. Milk produced by additional 70 cows. Milk price after expansion (including state subsidies, as well as a premium for quality and quantity paid by dairy plant) is 0.3 EUR per liter. For both production types, it is presumed that milk production per cow is 6,000 L in the first year. In the following years, it will increase every year by 50 L per cow, due to better farming practice,
ii. Milk price before enlargement is 0.25 EUR per liter (including state subsidies), but after enlargement it is 0.30 Euros per liter. This is why revenues will include the premium (0.05 EUR per liter) that will be calculated for the entire milk production of the original herd (30 cows),
iii. Surplus calves produced by additional 70 cows are additional revenue, as well. Price of bull calves and surplus heifer calves at the age of seven days is estimated at 100 EUR per head. Estimated calving rate is 86% (50% are male calves and the other 50% are female calves),
iv. Revenue from culled cows (only for expanded herd) is 500 EUR per head, (culling rate is 25%).

Total revenues of type 1 are calculated on the basis of the above mentioned assumptions and presented in Table 2. Revenues from additional 70 cows comprise of additional milk and calves sold at the market, while additional revenue from the original herd is caused by the premium paid for milk quality and quantity.

On the other hand, if a farmer decides to change production type and to diversify activities, production type 2 will be introduced. In this case, additional revenues which form cash flow of investment will comprise of:

i. Milk produced by additional 70 cows,
ii. Additional revenue from milk produced by original herd,
iii. Revenue from culled cows (from additional 70 cows),
iv. Revenue from heifers sold at market (including original herd and additional cows). Expected price per heifer is on average 1,000 EUR. Such revenues will not exist in first year of project, because heifers are sold at the age of 20 to 24 months,
v. Revenue from steers, including original and additional herd. Expected price per steer is 810 EUR. This type of revenue exists in first year of the project,
vi. Because male calves and surplus of female calves from original herd (30 cows) will not be sold, their worth will reduce total revenue.

Compared to type 1, revenues are additionally increased by the heifers and steers sold at the market (including original and additional herd). At the same time, compared to type 1, revenues decrease because calves are not sold at the age of seven days (Table 3).

As mentioned earlier, revenues induced by investments will increase during the observed period because of expected increase of milk production per cow. On the other hand, expenses are supposed to be at the same level during 10 years, because it is hard to predict future costs (primarily fodder costs as the most important element of total expenses). Due to the extreme variability of fodder costs and yields, their impact on net present value will be analyzed using scenario analysis. Total cash expenses generated by investments are presented in Table 4.

Similar to fodder costs, bedding and other material costs are calculated using market prices which have been usual in recent years. Labor costs are based on the presumption that production type 1 requires one additional worker in cattle production. For production type 2, it is necessary to employ two additional workers at farm. Monthly expense per worker (including various

Table 3. Total cash revenue generated by dairy expansion (type 2).

Year	Total revenue from additional 70 cows (EUR)	Additional revenue from existing 30 cows (EUR)	Total revenue (EUR)
1	152,043.50	23,731.50	175,775.00
2	174,443.50	23,806.50	198,250.00
3	175,493.50	23,881.50	199,375.00
4	176,543.50	23,956.50	200,500.00
5	177,593.50	24,031.50	201,625.00
6	178,643.50	24,106.50	202,750.00
7	179,693.50	24,181.50	203,875.00
8	180,743.50	24,256.50	205,000.00
9	181,793.50	24,331.50	206,125.00
10	182,843.50	24,406.50	207,250.00

Table 4. Average annual total cash expenses.

Expenses	Type 1 (EUR)	Type 2 (EUR)
Fodder costs	38,400.00	65,100.00
Bedding	6,700.00	8,650.00
Other material costs (water, fuel, electricity)	5,040.00	6,300.00
Labor	6,000.00	12,000.00
Various services (veterinarian services, transport)	3,100.00	3,800.00
Insurance of buildings, equipment and cows	6,170.00	6,340.00
Maintenance of buildings and equipment	6,100.00	7,100.00
Total expenses (without depreciation and interest)	71,510.00	109,290.00

taxes) is 500 EUR. Insurance expenses per year are calculated on the basis of the following insurance rates – 0.2% of purchase price for buildings, 0.5% for equipment and 5% for cows. Maintenance expenses per year are 1% of purchasing price for buildings and 4% for equipment. Income tax is not calculated, because farmers in Serbia pay tax on the basis of cropland area, not on the basis of profit. Taking into account that after dairy expansion farmers will possess the same number of hectares, taxes will remain at the same level. The reason for such a phenomenon is an absence of accounting at the Serbian family farms.

Economic efficiency of the investments

On the basis of determined cash revenues and expenses, net cash flow of investments is calculated in Tables 5 and 6 as well as their discounted net cash flows. Using data from these tables, it is possible to determine net present value and internal rate of return as the most important indicator of economical profitability of investments (Table 7).

Both investments are economically profitable, because they have positive net present values and internal rates of return greater than discount rate. It is possible to see that investment in production type 1 has grater internal rate of return, but investment in production type 2 has greater net present value. Such conflict between these methods arises because of the difference in sizes of the investments. Having in mind that these investments are mutually exclusive (only one of them can be accepted) it is better to chose investment in production type 2, because this investment adds more to investors wealth. But to make final decision on the investments, it is necessary to conduct scenario analysis, which will show expected net present values of both investments and its variability.

Scenario analysis

Scenario analysis is made only for factors that most significantly influence the height of the net cash flow of the investments. Concerning production type 1, revenues were mostly influenced by milk price, while expenses depended mostly on fodder costs. Having in mind specificity of production type 2, revenues are influenced not only by milk price, but also by prices of heifers and steers. Similarly to the type 1, expenses of production type 2 depend primarily on fodder costs.

For this scenario analysis, it was considered that assumptions which were previously described in the paper presented the most likely case. The probability of

Table 5. Net cash flow of dairy production – type 1 (EUR).

Year	Investment	Cash revenue	Cash expense	Salvage value	Net cash flow	Discount factor (6%)	Discounted NCF
0	415,000.00				-415,000.00	1.0000	-415,000.00
1		148,020.00	71,510.00		76,510.00	0.9434	72,179.25
2		149,145.00	71,510.00		77,635.00	0.8900	69,094.87
3		150,270.00	71,510.00		78,760.00	0.8396	66,128.41
4		151,395.00	71,510.00		79,885.00	0.7921	63,276.40
5		152,520.00	71,510.00		81,010.00	0.7473	60,535.38
6		153,645.00	71,510.00		82,135.00	0.7050	57,901.93
7		154,770.00	71,510.00		83,260.00	0.6651	55,372.66
8		155,895.00	71,510.00		84,385.00	0.6274	52,944.19
9		157,020.00	71,510.00		85,510.00	0.5919	50,613.24
10		158,145.00	71,510.00	210,000.00	296,635.00	0.5584	165,639.43

Table 6. Net cash flow of dairy production – type 2 (EUR).

Year	Investment	Cash revenue	Cash expense	Salvage value	Net cash flow	Discount factor (6%)	Discounted NCF
0	485,000.00				-485,000.00	1.0000	-485,000.00
1		175,775.00	109,290.00		66,485.00	0.9434	62,721.70
2		198,250.00	109,290.00		88,960.00	0.8900	79,174.08
3		199,375.00	109,290.00		90,085.00	0.8396	75,637.10
4		200,500.00	109,290.00		91,210.00	0.7921	72,246.86
5		201,625.00	109,290.00		92,335.00	0.7473	68,998.08
6		202,750.00	109,290.00		93,460.00	0.7050	65,885.61
7		203,875.00	109,290.00		94,585.00	0.6651	62,904.43
8		205,000.00	109,290.00		95,710.00	0.6274	60,049.64
9		206,125.00	109,290.00		96,835.00	0.5919	57,316.49
10		207,250.00	109,290.00	250,000.00	347,960.00	0.5584	194,299.05

Table 7. NPV and IRR of the investments.

Production type	NPV of investments (EUR)	IRR of investments (%)
Type 1	298,685.77	17.12
Type 2	314,233.04	15.18

the occurrence of the most probable outcome is estimated at 50%. The probability of the best case (optimistic) scenario is estimated at 20%, while the probability of the worst (pessimistic) case is considered to be 30%. Assumptions for the best case, concerning both production types, are:

1. Milk price is 0.35 EUR/L,
2. Price of steers per head is 990 EUR,
3. Price of heifers per head is 1,300 EUR,
4. Fodder costs decrease by 20%.

Assumptions for the worst case, concerning both production types, are:

1. Milk price is 0.25 EUR/L
2. Price of steers per head is 675 EUR,
3. Price of heifers per head is 800 EUR,
4. Fodder costs increase by 50%.

Results of the scenario analysis are shown in Tables 8 (production type 1) and 9 (production type 2). In the tables, net present values of the described scenarios are presented, as well as expected net present values, its standard deviations and coefficients of variation.

In both cases, expected net present value is positive, so that both investments (production types) could be accepted. Besides, for both production types expected net present value is lower than net present value in the

Table 8. Scenario analysis for production type 1.

Scenario	NPV	Probability of outcome	Total
Best case	583,414.44	0.20	116,682.89
Most likely case	298,685.77	0.50	149,342.89
Worst case	-70,831.09	0.30	-21,249.33
Expected NPV			244,776.45
Standard deviation of NPV			232,960.68
Coefficient of variation of NPV			0.95

Table 9. Scenario analysis for production type 2.

Scenario	NPV	Probability of outcome	Total
Best case	739,973.79	0.20	147,994.76
Most likely case	314,233.04	0.50	157,116.52
Worst case	-224,714.37	0.30	-67,414.31
Expected NPV			237,696.97
Standard deviation of NPV			342,830.22
Coefficient of variation of NPV			1.44

most likely case. This is caused by negative net present value that appears in the worst case scenario. Obviously, under bad conditions, big family dairy farms face significant problems, especially farms with production type 2. Therefore, the Serbian agrarian policy has to reduce a possible fluctuation of milk, fodder, steers and heifer prices. This is one of the possible ways to encourage small farmers to extend their cattle production and remain competitive in future.

It was determined that expected net present value of production type 1 is higher than expected net present value of production type 2. Therefore, results of the scenario analysis suggest that it is necessary to choose production type 1 instead of production type 2. Additional analysis of standard deviation and coefficient of variation leads to the same conclusion. Standard deviation and coefficient of variation (which is calculated by dividing standard deviation by expected net present value) are lower for production type 1 comparing with production type 2. Therefore, the investment in dairy production type 2 is riskier than the investment in production type 1. Within investment risk analysis coefficient of variation is considered to be better indicator of risk than standard deviation, because it reflects risk per unit of net present value.

The enlargement of dairy production on family farms is one of the basic preconditions for poverty reduction in the Serbian rural areas, for many reasons. The most important reason is the presence of dairy producers on the entire Serbian territory, as well as a huge number of small dairy producers. Dairy production is especially important for hilly and mountain regions in the central part of Serbia. These areas are undeveloped and their future development is primarily connected to agricultural production, where milk production plays the most important role.

Dairy production is also important for other parts of Serbia where intensive agricultural production takes place on high quality soil. In recent years, poultry and swine production has been primarily organized by big commercial farms. Therefore, family farms are mostly orientated towards dairy production. But having in mind that Serbia becomes involved in EU integration; small farmers have to enlarge its operation to remain competitive. Without significant investments in dairy production, a lot of family farms will disappear, which will cause additional unemployment and poverty in rural areas. Without the state support it will be almost impossible to enlarge significant number of family farms. At the moment, there are not enough subsidized loans for all farmers involved in dairy farming. There are also other problems that have to be solved by the Ministry of Agriculture, such as formation of a central laboratory for milk quality analysis, organization of appropriate market for steers and heifers etc. Besides, it is necessary to significantly improve infrastructure in rural areas, primarily roads and electricity. Also, many state funded organizations such as veterinary service and agricultural extension services are not developed.

Conclusion

Evaluation of the two possible ways (production types) of dairy expansion at family farms in Serbia without consideration of risky circumstances showed that the investment in production type 2 is more economically efficient, because it has higher net present value. But, the

usage of scenario analysis led to the different conclusion. Expected net present value was higher for production type 1 than production type 2. At the same time, the coefficient of variation for production type 1 is lower than for production type 2, which means that investment in production type 1 is less risky. Therefore, big Serbian farmers should be specialized in milk production, while combination of milk production with breeding of steers and heifers should be avoided, because it requires higher investments, generates lower expected net present value and is riskier than investment in specialized milk production. It is important to note that without various ways of state support, it is impossible to modernize and develop Serbian dairy production and decrease poverty in rural areas.

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