

STUDY REGARDING THE ENSURANCE WITH MILK AND DIARY PRODUCTS OF THE MIROSLAVA VILLAGE POPULATION IN 2007-2009

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Abstract

The purpose of this study is to determine whether the village Miroslava can be assured with optimal consumption of milk and dairy products for the local population in the conditions of 2007-2009. The study was conducted in the village Miroslava and were taken into account data on village population, livestock of dairy cattle and sheep, milk yields obtained, forage base structure and how it influences the milk production.

Therefore, based on these data, it will be produced three variants of consumption for milk and dairy products. Proposed variants will be analyzed for Miroslava village population, to determine whether existing milk production can meet the needs of consumers for milk and dairy products.

Variant 1 (V_1) - which represents the minimum consumption is 180 liters / person / year.

Variant 2 (V_2) - which represents the average consumption is 240 liters / person / year.

Variant 3 (V_3) - which represents optimal consumption is 300 liters / person / year.

Livestock of cattle and sheep drop by about 33% compared to 2007 while total milk production of cattle decreased in the period analyzed, although the average production has increased.

In Miroslava village consumption of milk and dairy products is not ensured even for minimum level of 180 l / person / year with all the existing forage base that could support a larger number of animals that would increase the milk production.

Key words: milk, dairy products, optimal consumption

INTRODUCTION

Worldwide, especially in the countries of the European Union in recent years has given great importance to the quality aspect of cow's milk production, both in terms of its content of useful substances (fats and proteins) and in terms of food safety that for human consumption [1].

Milk is the first food that man comes to from the first day of life. It is a food indispensable valuable from nutritional point of view.

In Romania, the consumption per capita, signs express a serious reality: we have an extremely low milk and dairy consumption-6.9 liters / month / capita, depending on age, while in the country from EU consumption is four times higher. The causes are multiple, but it is noticed a poor agricultural management in recent years and continues decreasing living standards. Statistical characterization of the size, structure and dynamics of populations important to underscore the absolute and

relative influence of factors causing this phenomenon.

In modern society, food consumption occupies a place of prime importance in all measures of continuous improvement of living standards [4].

Domestic consumption of milk and dairy products is very limited quantity, and the consumption per capita is much lower than in other developed countries. Because of their nutritional properties and their dietary, milk and dairy products are part of the daily intake of the population in Romania.

Consumption of these products depends primarily on the population's purchasing power and the offer for milk and dairy products. It should be noted also that has a large self-consumption in rural areas [3].

The study was conducted in the village Miroslava and were taken into account data on village population, livestock of cattle and sheep for milk, milk yields obtained, forage

base structure and how it influences the production of milk.

Therefore, based on these data, we prepared three variants of milk and dairy consumption.

Proposed variants will be analyzed for Miroslava village population to determine whether existing milk production can meet the needs of consumers for milk and dairy products.

Variant 1 (V_1) - which represents the minimum consumption is 180 liters / person / year.

Variant 2 (V_2) - which represents the average consumption is 240 liters / person / year.

Variant 3 (V_3) - which represents optimal consumption is 300 liters / person / year.

Further, it will be considered a version for the near-city area of Iași, in which case, using data on livestock, crop production and laid in previous chapters, it will determine if the existing production meets consumption needs variants.

It also will determine whether existing areas planted with forage crops, pastures and hay can provide the necessary food for cattle and sheep livestock in order to satisfy consumer needs, for milk and dairy products on variants.

In Miroslava village, the population was 9243 inhabitants in 2007, increases in 2008 untill 9437 and in 2009 it reached 9508 residents.

MATERIAL AND METHOD

The study was conducted in the village Miroslava, Iași County (Fig. 1):



Fig. 1 – Territorial location of the Miroslava village

To highlight the aspects that characterize the local population regarding the milk and dairy products consumption in 2007-2009 period it has been analyzed data on cattle and sheep livestock for milk production, the total average obtained and the existing forage base.

RESULTS

In Miroslava village, dairy cattle herds have experienced a decrease of about 33% in 2009 to reference year 2007. Even though the average per capita animal feed has developed positively over the three years analyzed (from 3420 l/head to 3500 l/head), total production decreased gradually in the same period, due to the systematic reduction in the number of fed animals (table 1).

In terms of sheep milk, the average heads in the village is 1342, with a peak in 2008 of 1412 heads.

Table 1 Evolution of the cattle herd and the yields obtained

Specification	MU	2007	2008	2009	2009 in % over 2007	Average
Livestock	heads	549	417	369	67	445
Average yield	l/head	3420	3490	3500	102	3470
Total yield	hl	18776	14553	12915	69	15415

Average milk production of sheep is 44 liters per capita, relatively constant over the three years considered, and the total yield is

growing about 19% compared to 2007 (table 2).

Table 2 Evolution of sheep livestock and production obtained in Miroslava

Specification	MU	2007	2008	2009	2009 in % over 2007	Average
Livestock	heads	1208	1412	1407	116	1342
Average yield	l/head	43	45	44	102	44
Total yield	hl	519	635	619	119	591

In Miroslava in 2007-2009, crops situation is as follows:

In 2007, due to unfavorable weather conditions (prolonged drought), production

of fodder plants and the use of permanent grassland has experienced a dramatic decline.

In 2008 and 2009 the area remained relatively constant, with higher yields recorded in 2008 (table 3).

Table 3 Development and production areas of forage crops and pastures during 2007-2009 in Miroslava village

Forage plants	2007		2008		2009		Average	
	ha	to	ha	to	ha	to	ha	to
Alfaalfa	208	2002	241	4964	231	4882	226,7	3949,3
Annuals	42	336	-	-	-	-	-	-
Other perennials	-	-	64	1270	-	-	-	-
Grassland								
Pastures	1399	9737	1386	27820	1394	27000	1393	21519
Hayfields	344	2022	333	6066	349	6000	342	4696

It is considered that a nutritional unit corresponds to:

- 3-4 kg of high quality grass (temporary and permanent grassland with good floral composition);

- 5 kg of good quality grass (grassland on fertile soils);

- 6 kg medium quality grass (grassland on poor soils);

- 7 kg lower quality grass (wetlands, grasslands with sedges etc.) [2].

The NU requirement for milk production is shown in table 4:

Table 4 The N.U. requirement for milk production

Average milk production (l)	6 – 8	10 – 12	14 – 16	18 – 20
N.U. required	1,16	0,91	0,81	0,75

Table 5 The total N.U. calculation in 2009 in Miroslava village

No.	Crop	Production (to)	N.U./kg	Total N.U.
1.	Alfaalfa	4.882	0,49	2.392.180
2.	Pastures	27.000	0,20	5.400.000
3.	Hayfields	6.000	0,50	3.000.000
4.	TOTAL			10.792.180

Variant 3

In Miroslava village, variant 3, the optimal consumption of milk and dairy products is covered if the area would produce 300 l · 9508 inh. = 28.524 hl. The number of dairy cows in the area is of 369 heads, the sheep livestock is 1407, and the average production is 3,500 liters per head (for cattle milk) and 44 liters per head (for sheep milk), with a total production of 12,915 hl (for cattle milk) and 619 hl (for sheep milk), totalizing 13,534 hl.

With a total production of 13,534 hl, it is clear that optimal consumption for Miroslava inhabitants can not be achieved with the existing livestock and there is a shortfall of 14,990 hl.

To cover the necessary optimal consumption of 300 liters per person, would

be needed $0.91 \frac{NU}{l} \cdot 300 l = 273 NU$.

For the whole population, the necessary would be $273 \cdot 9508 = 2,595,684 NU$. Comparing with the actual situation (10,792,180 NU) it can be seen that the areas

planted with forage crops, pastures and meadows creates a surplus for Miroslava village and supports increasing the number of cattle and sheep to ensure optimum consumption.

To find the NU requirement to produce a liter of milk, divide the average yield to the number of lactation days (305 days).

In Miroslava village, the average production for dairy cattle is 3,500 liters per head, and the average milk production for sheep is at a value of 44 liters per head, totalizing 3544 liters per head. $3,544 : 305 = 11.6$ l, so it is needed 0.91 NU to produce 1 liter of milk with 3.8-4 % fat.

Variant 2

In Miroslava village, variant 2, the average consumption of milk and dairy products is covered if the area would produce $240 \text{ l} \cdot 9508 \text{ inh.} = 22819 \text{ hl}$.

Total production is 13,534 hl, so neither in this case average consumption of milk and dairy products can not be assured, with a deficit of 9285 hl.

To cover the necessary average consumption of 240 liters per person, would

be needed $0,91 \frac{NU}{l} \cdot 240 \text{ l} = 218,4 \text{ NU}$. For

the whole population, the necessary would be $218,4 \cdot 9508 = 2,076,547 \text{ NU}$. Comparing to the actual situation (10,792,180 NU) can be seen that the areas planted with forage crops, pastures and meadows create a surplus of NU for Miroslava village.

Variant 1

In Miroslava village, variant 2, the average consumption of milk and dairy products is covered if the area would produce $180 \text{ l} \cdot 9508 \text{ inh.} = 17114 \text{ hl}$.

Obtained production is insufficient, it is not able to provide the minimum necessary for the local consumption of milk and dairy products, and there is a deficit of 3580 hl.

To cover the necessary average consumption of 180 liters per person, would

be needed $0,91 \frac{NU}{l} \cdot 180 \text{ l} = 163.8 \text{ NU}$. For

the whole population, the necessary would be $163.8 \cdot 9508 = 1,557,410 \text{ UN}$. Comparing to the actual situation (10,792,180 NU) can be seen that the areas planted with forage crops, pastures and meadows create a surplus of NU for Miroslava village.

CONCLUSIONS

1. Cattle livestock drop by about 33% compared to 2007;
2. Total cattle milk production decreases the period under review, although the average increased;
3. Sheep livestock fall down in 2009 compared to 2007, but still recorded an increase compared to reference;
4. Average yields are maintained at approximately the same values, while total production increased;
5. The Miroslava consumption of milk and dairy products is not ensured even a minimum level of 180 l / capita / year;
6. Existing forage base could support growth of a larger number of animals that make it possible to achieve higher production of milk.

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