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ROMANIA'S SELF-SUFFICIENCY WITH REGARD TO MILK CONSUMPTION IN THE CONTEXT OF DOMESTIC SUPPLY RESTRUCTURING – TRENDS AND PERSPECTIVES

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Abstract

The paper identified the new opportunities for relaunching the Romanian milk and dairy consumption, from the perspective of domestic supply restructuring, having in view the support measures of the sector under the new NRDP (2014-2020). The method used for the elaboration of scenarios with regard to increasing self-sufficiency in milk and dairy products was based on statistical calculations of the average yearly growth rate and the dynamics index of the utilizable production, import and export of dairy products in milk equivalent, as well as production, import and export forecasts, having as data sources the publications of the National Institute of Statistics – Food Balance Sheets, Population's Consumption Availabilities, 2007-2014. The results reveal that the decrease of imports by an average yearly rate of 1.5%, together with the increase of utilizable production by an yearly rate of 3%, will lead to self-sufficiency increase to 96%, beginning with 2016, and this situation will be maintained until the year 2018. The conclusions highlight that in the period 2014-2018, Romania will be still dependent on dairy imports.

Key words*: milk consumption, production, self-sufficiency*

INTRODUCTION

As regards the dairy products, the world demand of EU cheese will considerably increase in the main importing countries by the year 2022 (e.g. by 65% in the United States, by 52% in Mexico and by 33% in Russia), while the demand of EU skim milk powder is expected to increase by 90% in China and 27% in Russia [7].
On the other hand, the removal of milk quotas in April 2015 will increase competition among Member States. In this context, the main objective of the paper was to identify new opportunities for relaunching the Romanian milk and dairy consumption, from the perspective of domestic supply restructuring, having in view the support measures for the sector under the new NRDP (2014-2020) and the increase of the Romanian milk sector competitiveness, as Romania has a long tradition in producing milk, due to its geographical position, with a large variety of relief, significant agricultural land areas and also pastures and meadows for raising cattle, sheep and goats[6]. As regards the packed cow milk consumption, according to Euromonitor International 2012 study, Romania is on the penultimate place in the European Union, with only 12.6 kg/capita/year, followed by Bulgaria, with 9.2 kg/capita/year, as compared to the average consumption of Western Europe of 67.5 kg/capita/year[4].

MATERIALS AND METHODS

The method used for the design of scenarios on the self-sufficiency increase in milk and dairy products was based on statistical calculations of the yearly growth rate and the dynamics index of utilizable production, import and export of dairy products in milk equivalent, as well as production, import and export forecasts, having as data sources the publications of the National Institute of Statistics – Food Balance Sheets, the Population's Consumption Availabilities, 2007-2014[2] and Tempo-online[8].

RESULTS AND DISCUSSIONS

Milk market liberalization in 2015 will mean a larger production in the West-European countries that already have well-established and developed production, collection and export systems. Practically, the large producers will suffocate the local producers' business, who will have to sell or to lose to the detriment of imports, and we can even expect disequilibria on the European market[3].

For the Romanian producers, the milk market liberalization will mean both a challenge and a threat. In order to adjust to the competition on the European Single Market, the Romanian milk sector needs support through investments in technology, equipment, biological material, in the conditions of a global conjuncture favourable to the consumption of dairy products, in which the world prices are expected to increase, on the basis of increasing demand from the developing regions.

The baseline scenario first evaluates the current situation in the evolution of milk production, imports and exports in milk equivalent, of the supply and consumption availability and of self-sufficiency, in the period 2007-2013 and the 2014-2018 forecast, starting from the consideration that the situation remains unchanged, the investigated indicators following the same trends.

Thus, in the period 2007-2013, the situation is the following (Table 1):

The milk and dairy production in milk equivalent with 3.5% fat (butter exclusively) had an average yearly level of 6089 thousand tons in the period 2007-2013 and it has been modified by -177 thousand tons on the average from one year to another, i.e. by an average yearly rate of -2.8%.

The total import of milk and dairy products in milk equivalent with 3.5% fat (butter exclusively) had an yearly average level of 438 thousand tons in the period 2007-2013 and it has been modified by 46 thousand tons on the average from one year to another, i.e. by an average yearly rate of +12.9%.

The total export of milk and dairy products in milk equivalent with 3.5% fat (butter exclusively) had an average yearly level of 96 thousand tons in the period 2007-2013 and it has been modified by 30 thousand tons on the average, i.e. by an average yearly rate of +35.6%.

The supply availability and the human milk consumption followed the same trends, being modified by an average yearly rate of -2.4%.

Table 1. Milk and dairy products in milk equivalent with 3.5 % fat (butter exclusively) 2007-2013

	2007	2008	2009	2010	2011	2012	2013
utiliz prod	6,733	6,687	6,406	5,710	5,789	5,628	5,673
dairy import milk equiv	261	348	457	445	522	492	539
dairy export milk equiv	35	43	67	91	96	121	218
supply avail.	6,952	6,997	6,776	6,126	6,207	6,002	5,992
human consumption	5608	5640	5156	4944	5007	4836	4875
self-sufficiency	97%	96%	95%	93%	93%	94%	95%

Source: Food Balance Sheets, National Institute of Statistics

It is also interesting to analyze the self-sufficiency degree evolution, as important indicator of food security, in the period 2007-2013. Thus, self-sufficiency permanently decreased from 97% in 2007 to 94% in 2012, to increase afterwards to 95% in 2013.

The self-sufficiency degree is calculated as the ratio of domestic production to consumption availability (i.e. production + import – export ± stock variation).

The forecast on the evolution of milk production, import and export in milk equivalent, of the supply availability and of consumption availability for the period 2014-2018 (5 years) started from the analysis of the period 2007-2013, calculating in this respect the average yearly growth rate (Table 2), the level and average increase for all the previously mentioned indicators (Annex 1, 2, 3).

Table 2. Statistical indicators for milk 2007-2013

Item	Utilizable production	Dairy import milk equiv.	Dairy export milk equiv.	Supply availability	Human consumption
Average yearly index %	97.2	112.9	135.6	97.6	97.7
Average yearly rate %	-2.8	+12.9	+35.6	-2.4	-2.3

Source: author's own calculations

As it has been mentioned before, in this scenario, the 2014-2018 forecast was made by considering that the variables follow the same

trend as that from the previous investigated period (Table 3).

Table 3. Milk and dairy products in milk equivalent with 3.5% fat (butter exclusively), 2014-2018

	Average index	2014	2015	2016	2017	2018	2018 / 2013 %
utiliz prod	0.971843	5618	5563	5509	5456	5403	-4.8
dairy imp. milk equiv	1.128695	545	551	557	564	570	5.8
dairy exp. milk equiv.	1.355639	221	224	227	230	233	7.0
supply availability	0.975535	5934	5876	5818	5762	5705	-4.8
human consump.	0.976925	4827	4780	4734	4687	4641	-4.8
self-sufficiency	-	95%	95%	95%	95%	95%	-

Source: author's own calculations

Thus, according to calculations, it results that compared to 2013, exports increased by 7%, imports by 5.8%, while production, supply availability and human consumption decreased by -4.8%, self-sufficiency being maintained at 95%.

Self-sufficiency increase scenarios

Besides the baseline scenario, we intended to design other 5 scenarios, in which we estimated an increase of the self-sufficiency degree for the period 2014-2018, on the basis of hypotheses presented below. We took into consideration the current and future policy measures addressed to the milk sector, the milk supply seasonality in Romania (difference between the winter and summer production volumes), sector fragmentation, the low productivity compared to that in the West-European countries, evolution of milk and dairy imports and exports in the period 2007-2013.

Internal policy measures

-***Stimulating association*** - *de minimis aid for the procurement of milk cooling tanks*, benefiting the agricultural producers, livestock farmers who own up to 5 dairy cow heads and are organized for this purpose into a single association form established at commune level (Government's Decision, November 2013).

The total value of financial support allocated for the year 2014 is 70,879 thousand RON (15,885,000 Euro), with a maximum value of support per association of 5,000 Euro (22,310 RON). This value includes the costs of procurement and installation of milk cooling tank with a capacity of maximum 1,000 litres/administrative-territorial unit organized at commune level, the training costs necessary for its utilization and well as the service costs for a period of 12 months from its installation.

As effects of this measure, we mention that by April 15, 2014, 270 communes from Romania submitted documents for the procurement of 399 milk cooling tanks, the requested capacity for the 399 tanks amounting to 308,470 litres, for 53,132 cows.

The requested amount totalled 1.5 million euro, i.e. 9.4% of the total value of financial support (there is the possibility to procure two tanks with lower capacity, of 500 litres each, in one commune).

-***Stimulating the increase of the livestock number and of production*** – *de minimis aid for the procurement of heifers from specialized breeds* (measure launched in 2014).

The support value is 5,000 RON/head, and the number of animals for which support applications have been already submitted is 1,740 heads (8.7 million RON from the state budget).

-***Premia*** – *National transitory aids (NTA)* in the livestock sector, bovine species, are granted from the state budget, through MARD budget, for: *scheme decoupled from production in the milk sector* benefiting the agricultural producers, natural persons or legal entities, who own, raise and operate production animals, identified and registered in the national system - this is granted for the milk quantity produced and registered for deliveries and/or direct sales in the milk quota administration system. The total value for the applications submitted in the year 2013 for the *scheme decoupled from production in the milk sector was* 96200 thousand RON (21,770 thousand euro)

Support measures from European funds

-***Specific aid for milk producers from less-favoured areas.*** The value of financial support for the less-favoured areas for the livestock sector, in the year 2014, is 39,824,205 Euro, of which for the dairy cows (89,709 heads), 22,427,205 Euro (56.3%), i.e. 250 euro/head and for buffalo cows (8,000 heads) 1,500,000 Euro, i.e. 187.5 Euro/head.

One of the main measures from the new

NRDP 2014-2020 refers to the financial support to family farms. Its purpose is agricultural production increase, the increase of the economic farm size and the increase of production sold by farmers on the market, to the detriment of self-consumption. The funds attracted through projects can be used for investments in: equipment, farm implements, buildings, procurement of animals.

Methodological hypotheses

-the maintenance and even supplementing the support measures for the milk sector under the new NRDP 2014-2020 are expected;

-the investigated indicators, in all the scenarios, refer to production, import, export; on their basis the supply availability, self-sufficiency degree and consumption per capita are calculated;

-the application of the measure regarding the de minimis aid for encouraging the producers' association and increase in number of dairy cows, as well as granting premia (complementary national direct payments) will have as plausible effect the increase of domestic milk production, the increase of production for processing collected from the farms and collection centres from the country, in the period 2014-2018;

-with the milk market liberalization in the European Union and the production quota removal starting with the year 2015, we expect the Western-European farmers, already prepared for this moment, to be on a much more favourable position than the Romanian farmers, as regards farm performance; thus, in the presented scenarios we considered a variable import evolution trend and a constant export evolution trend in dairy products for the period 2014-2018;

-we considered that the number of population remained constant in the period 2014-2018;

Scenario 1 – production increase by 10% (2% yearly average rate), import/export growth, constant self-sufficiency

In this scenario, we estimated an increase of utilizable production in the period 2014-2018 by 10% (2% yearly average rate), import and export increase by a yearly average rate of 1.1286%, and 1.3556% respectively (Table 4).

Table 4. Estimating the self-sufficiency degree, Scenario 1

Item	UM	2014	2015	2016	2017	2018	2018/ 2014 %
Utilizable production	thou tons	5,786	5,902	6,020	6,141	6,263	8.2
Import	thou tons	545	551	557	564	570	4.6
Export	thou tons	221	224	227	230	233	5.5
Supply availability	thou tons	6,111	6,229	6,351	6,474	6,600	8.0
Human consumption	thou tons	4,950	5,046	5,144	5,244	5,346	8.0
Consump/cap	Kg	233	237	242	247	251	8.0
Self-sufficiency	%	95%	95%	95%	95%	95%	-

Source: author's own calculations

As it can be noticed, even in the conditions of utilizable production increase from 5786 thousand tons in 2014 to 6,263 thousand tons in 2018 (by 477 thousand tons), the self-sufficiency degree will remain unchanged, i.e. 95%, the dairy consumption per capita increasing by 8%,

Scenario 2 – production increase by 15% (3% yearly average rate), import/export growth, constant self-sufficiency

In this scenario, we estimated an increase by 15% of utilizable production in the period 2014-2018 (3% yearly average rate), increase of import and export by an average yearly rate of 1.1286% and 1.3556% respectively (Table 5).

Table 5. Estimating the self-sufficiency degree, Scenario 2

Item	UM	2014	2015	2016	2017	2018	2018/ 2014 %
Utilizable production	Thou tons	5,843	6,018	6,199	6,385	6,577	12.6
Import	Thou tons	545	551	557	564	570	4.6
Export	Thou tons	221	224	227	230	233	5.5
Supply availability	Thou tons	6,167	6,346	6,530	6,719	6,913	12.1
Human consumption	Thou tons	4,996	5,140	5,289	5,442	5,600	12.1
Consump/capita	Kg	235	242	249	256	263	12.1
Self-sufficiency	%	95%	95%	95%	95%	95%	-

Source: author's own calculations

As in the previous scenario, only the utilizable production growth, even by 15% (3% yearly average rate), in the period 2014-2018 and maintaining the same import and export growth rates will not make it possible to increase the self-sufficiency degree, this remaining constant at 95%. The situation will change as regards the consumption per capita, which will grow by 12.1% in the investigated period.

Scenario 3 – production increases by 10% (2% yearly average rate), import decreases (1% yearly average rate), export increases, self-sufficiency increases in 2017

In this scenario, we estimated an increase of utilizable production by 10% in the period 2014-2018 (2% yearly average rate), import decrease by 5% (1% yearly average rate) and export increase by 1.3556% as yearly average rate (Table 6).

Table 6. Estimating the self-sufficiency degree, Scenario 3

Item	UM	2014	2015	2016	2017	2018	2018/ 2014 %
Utilizable production	thou tons	5,786	5,902	6,020	6,141	6,263	8.2
Import	thou tons	534	528	523	518	513	-3.9
Export	thou tons	221	224	227	230	233	5.5
Supply availability	thou tons	6,099	6,207	6,316	6,428	6,543	7.3
Human consumption	thou tons	4,940	5,027	5,116	5,207	5,300	7.3
Consump/capita	kg	232	236	241	245	249	7.3
Self-sufficiency	%	95%	95%	95%	96%	96%	-

Source: author's own calculations

Under this variant, even though the utilizable production has an increasing trend, by 2% each year, only the import decrease by 1% each year will determine self-sufficiency increase from 95% to 96% starting with the year 2017, while the consumption per capita will increase by 7.3% in the investigated period,

Scenario 4 – production increases by 15% (3% yearly average rate), import decreases (1% yearly average rate), export increases, self-sufficiency degree increases in 2017

In this scenario, we estimated an increase of utilizable production by 15% in the period 2014-2018 (3% yearly average rate), import decrease by 5% (1% yearly average rate) and export increase by 1.3556% yearly average rate (Table 7),

Table 7. Estimating the self-sufficiency degree, Scenario 4

Item	UM	2014	2015	2016	2017	2018	2018/ 2014 %
Utilizable production	thou tons	5,786	5,902	6,020	6,141	6,263	8.2
Import	thou tons	534	528	523	518	513	-3.9
Export	thou tons	221	224	227	230	233	5.5
Supply availability	thou tons	6,099	6,207	6,316	6,428	6,543	7.3
Human consumption	thou tons	4,940	5,027	5,116	5,207	5,300	7.3
Consump/capita	kg	232	236	241	245	249	7.3
Self-sufficiency	%	95%	95%	95%	96%	96%	-

Source: author's own calculations

Like in the previous scenario, self-sufficiency increases to 96% beginning with the year 2017, while the consumption per capita increases by 11.4% in the investigated period.

Scenario 5 – production increases by 15% (3% each year), import decreases (1.5% yearly average rate), export increases, self-sufficiency increases in 2017

In this scenario, we estimated an increase of utilizable production by 15% in the period 2014-2018 (3% yearly average rate), decrease of imports by a yearly average rate of 1.5% and the increase of exports by a yearly average rate of 1.3556% (Table 8),

Table 8. Estimating the self-sufficiency degree, Scenario 5

Item	UM	2014	2015	2016	2017	2018	2018/ 2014 %
Utilizable production	thou tons	5,786	5,902	6,020	6,141	6,263	8.2
Import	thou tons	534	528	523	518	513	-3.9
Export	thou tons	221	224	227	230	233	5.5
Supply availability	thou tons	6,099	6,207	6,316	6,428	6,543	7.3
Human consumption	thou tons	4,940	5,027	5,116	5,207	5,300	7.3
Consump/capita	kg	232	236	241	245	249	7.3
Self-sufficiency	%	95%	95%	95%	96%	96%	-

Source: author's own calculations

In this last scenario, which we consider the closest to the proposed goal, namely the fast relaunching of the self-sufficiency degree, the results reveal that the only modality to achieve this is to increase domestic production, together with the diminution of dairy imports. Thus, the self-sufficiency degree can reach 96%, beginning with 2016, yet remaining constant until 2018, sitution in which milk consumption per capita will also increase by 11.2% in the period 2014-2018.

CONCLUSIONS

The obtained results with regard to self-sufficiency degree increase for the product milk, in the period 2014-2018 (5 years), on the basis of the 5 scenarios, lead us to the following conclusions:

-in no scenario, the self-sufficiency degree will exceed 96% (in 2016 and 2017), compared to 95% in 2013;

-the continuation of import increase at a rate higher than the export rate in milk and dairy

products in milk equivalent, even in the conditions of utilizable production increase by 10%, 15% respectively, will make the self-sufficiency degree remain unchanged, at 95% respectively, similar to that in 2013;

-only the decrease of imports by a yearly average rate of 1.5%, together with the utilizable production growth by a yearly average rate of 3%, will lead to self-sufficiency increase at 96%, beginning with 2016, and this situation will be maintained until 2018.

Another important conclusion that can be drawn from the analysis of the milk production sector is that the exponential shock expected in 2015, with the removal of milk quotas, can be counteracted by organization and association into structures that can provide economic equilibrium throughout the production chain, from farm to final user.

That is why meeting the population's consumption needs with animal products from the domestic production and the creation of export availabilities, as well as the qualitative improvement of the Romanian consumption represent a main objective, which can be reached only by sectoral policy measures that should have in view the following[7]:

-establishment of competitive farms and the technological revamping of the existing ones by attracting investments and use of structural funds in livestock farming;

-quality improvement of milk and beef production both through the procurement of animals from superior breeds adaptable to our country's conditions, as well as the improvement of herds through the application of the latest selection and breeding methods;

-improvement of production performance, as well as the raising and operation conditions, in order to increase the relative share of livestock production in the agricultural output value;

-improvement of animal nutrition and feeding by ensuring nutrients with optimum caloric and protein content for the bovine species.

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