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## Milk processing and collection in Romania: An analysis across regions

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# MILK PROCESSING AND COLLECTION IN ROMANIA – AN ANALYSIS ACROSS REGIONS

MARIANA GRODEA <sup>1</sup>

**Abstract:** *The excessive farm fragmentation and the permanent decrease of dairy cow herds resulted in the diminution of the milk quantities delivered to processing from 1.8 million tons (43.4%) in 1990 to 1.1 million tons in 2014 (24.3%). The results of the analysis reveal that the milk collection centers authorized for intra-community trade do not operate in all the counties of the country. Nationwide, there are 902 centers, out of which 39% are found in the counties Botoșani (215) and Mureș (139). By contrast, the milk processing factories authorized for intra-community trade operate in almost all the counties (except for Mehedinți county), 171 in total, the highest concentration being found in the counties Suceava (17), Constanța (14) and Mureș (12). The support to the milk sector is one of the priority directions of the new NRDP 2014-2020, through investments in the modernization of dairy farms and milk collection centers and distribution of finished products.*

**Keywords:** *processing, milk collection*

JEL Clasification: Q10, Q13, Q19

## INTRODUCTION

The global milk demand will increase by 36% in the next ten years, largely due to the population growth, increase of prosperity and urbanization in Africa, Asia and Latin America. However, milk demand and supply are facing disequilibrium worldwide, as the increasing demand on the emerging markets cannot be covered by domestic production, while the developed dairy markets that have surplus milk production are confronted with challenges as regards the competition for exports and a decreasing domestic consumption [1].

At the same time, the dairy companies increasingly focus on the importance of milk relevance revitalization among consumers of all ages, through the introduction of innovating products and of a new marketing and communication approach. Consumers consider that milk is “a nutritious”, “healthy” food, “a good calcium source” and “tasty”, yet for maintaining the relevance of this product in a modern world, the producers have to innovate and develop milk-based drinks adapted to the continuously changing lifestyle, to develop communication campaigns in order to show that milk has benefits, it is a savory food, even a delight and important for everybody [2]. This because worldwide not consumers continue to have a strongly positive opinion on milk virtues, they understand its nutritional value, yet they consider that the diversity and advantages provided by this product cannot sufficiently keep pace with the modern lifestyle and their expectations.

According to *Euromonitor*, the consumption of simply packed marketed milk is only 36 ml/ person/ day, which is a low level compared to the recommended daily intake. Romania continues to be on the penultimate place in the European Union, its milk consumption being 4.4 times lower than the average milk consumption in Western Europe and 2.4 times lower compared to Eastern Europe. Ireland (356 ml/capita/day), Finland (338 ml/capita/day), Spain (242 ml/capita/day), Denmark (223 ml/capita/day) and Sweden (227 ml/capita/day) continue to be on the first places on this list [3].

## MATERIAL AND METHOD

For the hierarchization of the eight statistical regions of Romania from the agricultural potential standpoint, we used a set of specific indicators in the analysis of dairy cow farms

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performance in Romania; these indicators reflect the regional economic development environment. These regional indicators refer to the average milk yield, dairy farm size, milk production collected by the processing units, the number of dairy factories and milk collection centers approved for intra-community trade. The data source used was the Tempo-online database – time series – NIS, as well as Eurostat, for the period 2007-2014.

The documentation and synthesis of the main ideas was based on the national and international literature on milk market evolution at European level (reports, studies, EUROSTAT, FAOSTAT publications), having in view the future agricultural reform, the European agricultural trade liberalization, the functioning of national markets, the management of risk induced by the current climate changes and the economic-financial crisis.

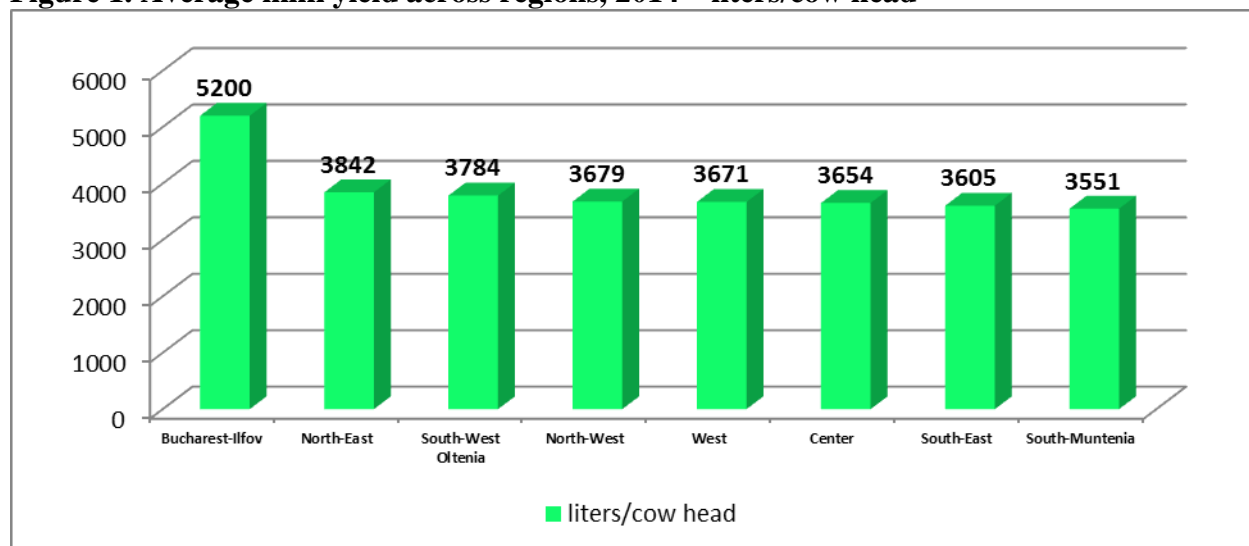
## RESULTS AND DISCUSSIONS

An economically competitive milk production on the European market presupposes the design of production systems and technologies adapted to the various eco-economic-social conditions from our country. The improvement of dairy cattle exploitation systems is the main modality by which Romania can obtain a viable and competitive cattle production [4].

The strategic program for cattle raising and exploitation should lead to the increase in number of dairy herds and their concentration into commercial farms, and mainly to the **productivity increase per animal head**, i.e. the increase of average milk yield, of the protein and fat percentage in milk.

**The average milk yield** in Romania, among the lowest in Europe (3704 liters/cow head – 2014), can be explained by the low competitiveness of the sector. However, it is worth mentioning that in the period 2005-2014 the average milk yield had a positive evolution, both at national and regional level. Thus, under the background of average national increase by 11% (368 liters), the region Bucharest-Ilfov stands out with 36% (1376 liters). Smaller increases of average yields in the above-mentioned period can be found in the regions South-Muntenia (+3.4%) and South-East (+5.8%). In the zonal hierarchy, in the year 2014, the region Bucharest –Ilfov is on the first place, with an average milk yield of 5200 liters per cow head, followed by the region North-East with 3842 liters/cow head (Figure 1)

**Figure 1. Average milk yield across regions, 2014 – liters/cow head**



Source: NIS-Tempo-online

**The economic size** of farms is expressed by the level of standard output value – SO (Standard Output). Although this is not a new concept, the standard output coefficient is an essential instrument in the calculation of farm size and in most funding measures from the new NRDP, the standard production (SO) value is an important, even eliminatory criterion.

From this point of view, both at national and regional level, in the year 2013, the dairy cow farms with an **economic size** of 4000-7999 euro have the highest share (Table 1).

**Table 1. Dairy farm size by regions – 2013 -%**

	<b>Total</b>	North-West	Center	North-East	South-East	South-Muntenia	Bucharest - Ilfov	South-West Oltenia	West
under 2000 euro	<b>9.30</b>	7.28	5.58	12.34	7.70	12.63	14.02	6.63	4.72
2000-3999 euro	<b>33.00</b>	28.14	22.90	38.86	28.73	39.32	28.97	34.91	20.95
4000-7999 euro	<b>39.21</b>	<b>40.36</b>	<b>38.48</b>	<b>36.96</b>	<b>43.73</b>	<b>35.47</b>	<b>42.06</b>	<b>44.34</b>	<b>40.99</b>
8000-14999 euro	<b>12.87</b>	17.63	20.69	8.51	12.75	8.83	10.28	10.53	23.71
15000-24999 euro	<b>3.40</b>	4.33	6.67	2.11	3.68	2.38	1.87	2.45	5.93
25000-49999 euro	<b>1.56</b>	1.71	3.78	0.90	2.14	1.01	0.93	0.88	2.54
50000-99999 euro	<b>0.45</b>	0.39	1.31	0.22	0.81	0.25	0.93	0.19	0.76
100000-249000 euro	<b>0.15</b>	0.11	0.45	0.06	0.33	0.08	0.00	0.05	0.24
250000-499999 euro	<b>0.03</b>	0.02	0.09	0.02	0.07	0.02	0.00	0.00	0.06
over 500000 euro	<b>0.03</b>	0.02	0.05	0.02	0.05	0.04	0.00	0.02	0.06

Source: Eurostat

At the same time, the farms with an economic size of 2000-3999 euro also have a significant share, i.e. 33% at national level. This negative fact entails a low possibility to access the European funds for the development of holdings by many farmers, if we have in view the minimum threshold of 8000 euro. From this point of view, the low average dairy farm size reflects the subsistence character, which prevails in the milk production sector.

#### **Milk collection and processing at regional level**

After many years of continuous growth of milk industry in Romania, based on an ever increasing consumption demand, the global economic crisis, which was also noticeable in Romania, after 2008, led to the decrease of milk production each year, as reflected by figures, through the diminution of dairy cattle herds and of the collected milk quantity. After a short revigoration in the year 2014, when production unexpectedly recovered to a level close to that of the period 2008-2009, in the year 2015, when milk quotas were removed in EU, the amount of cow milk collected in the processing units sharply decreased by 7% compared to the previous year.

In the period 2007-2015, total raw milk production collected by the processing units (coming from domestic production and from imports) decreased by 133375 tons (-11.1%). In the investigated period, only the collected ewe and goat milk increased by 29650 tons (1.8 times). The cow and buffalo-cow collected in the country decreased instead by 217075 tons (-19.1%) and by 33272 tons (-69.8%) respectively. In 2015, the cow milk had the highest share in the milk collected for processing (95.1%), followed by the ewe milk (3.1%) and goat milk (1.7%) (Table 2).

**Table 2. Evolution of raw milk collected for processing**

Item	2007	2008	2009	2010	2011	2012	2013	2014	2015
Cow milk	1136372	1051481	991588	903750	897348	887854	882381	996653	919297
Buffalo cow milk	4689	3538	2139	1393	963	1111	1282	1400	1417
Goat milk	4250	4026	4008	3856	3366	4677	7116	15001	16829
Ewe milk	12608	13634	13729	16406	14345	15759	18122	27280	29679
<b>Total raw milk collected in the country *</b>	<b>1157919</b>	<b>1072679</b>	<b>1011464</b>	<b>925405</b>	<b>916021</b>	<b>909401</b>	<b>908901</b>	<b>1040335</b>	<b>967222</b>
<b>Imported raw milk</b>	<b>43856</b>	<b>51707</b>	<b>80636</b>	<b>87309</b>	<b>82061</b>	<b>59267</b>	<b>96105</b>	<b>77396</b>	<b>101178</b>

<b>Total raw milk for processing</b>	<b>1201775</b>	<b>1124386</b>	<b>1092100</b>	<b>1012714</b>	<b>998082</b>	<b>968668</b>	<b>1005006</b>	<b>1117731</b>	<b>1068400</b>
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Source: NIS-Tempo-online

The analysis by the two origin sources, i.e. milk collected in the country and imported milk, reveals that the share of imported raw milk increased from 3.6% in the year 2007 to 9.5% in 2015, while the share of the raw milk collected in the country constantly decreased from 96.3% in 2007 to 90.5%. Overall, in the period 2007-2015, the analysis reveals the decrease of the raw milk quantity collected from the farms in the country by 16.5%, while the imported raw milk quantity increased by 130.7%. This situation can be explained by the fact that in Romania the collection system is not very well organized, and the prices paid by the milk collectors are not attractive for farmers, so that these prefer to sell their production on their own, through family businesses.

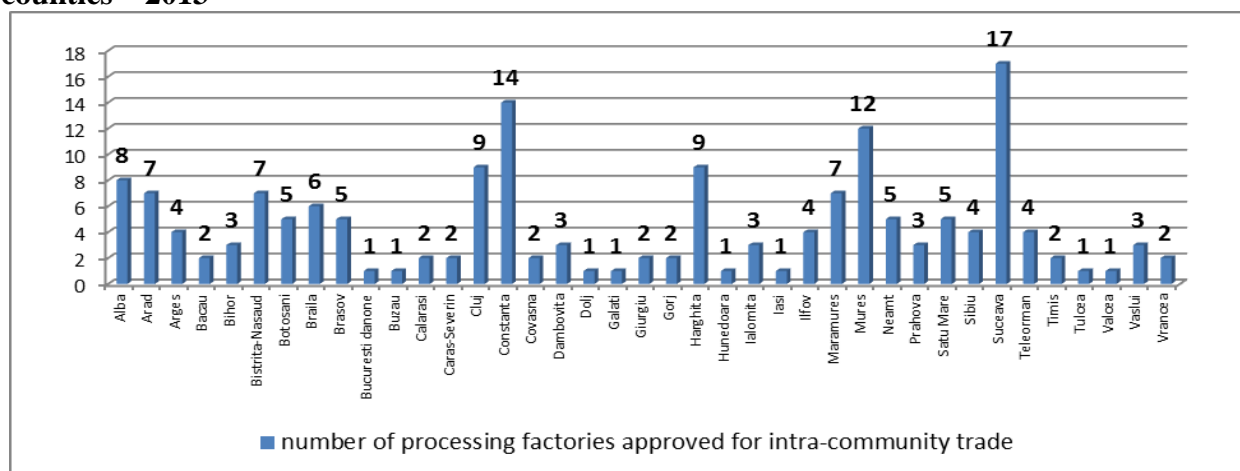
Following the analysis of milk collection by development regions, we found out that the largest milk quantity was collected in the region Center, in the year 2014 this accounting for 37.2% of total collected milk (Table 3). The region Center is also the only region in which the collected milk quantity constantly increased in the period 2007 – 2014, by 16515 tons (4.7%).

**Table 3. Milk production collected by the processing units by development regions – %**

	2007	2008	2009	2010	2011	2012	2013	2014
<b>Country total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
North – East	20.1	21.9	20.9	21.8	21.7	21.0	21.1	20.7
South – East	8.3	8.1	7.8	6.3	5.9	5.8	6.0	5.7
South – Muntenia	6.5	6.4	6.7	7.2	7.5	7.2	7.5	6.9
South - West Oltenia	n/a	n/a	n/a	n/a	0.7	n/a	n/a	n/a
West	2.4	2.6	2.7	2.9	2.7	3.2	3.0	3.8
North – West	23.2	22.6	22.7	22.3	22.2	22.1	19.5	20.7
<b>Center</b>	<b>31.2</b>	<b>29.7</b>	<b>30.3</b>	<b>30.5</b>	<b>29.9</b>	<b>32.3</b>	<b>36.4</b>	<b>37.2</b>
Bucharest – Ilfov	n/a	n/a	n/a	8.0	9.4	n/a	n/a	n/a

Source: NIS-Tempo-online

**Figure 2. Distribution of processing factories approved for intra-community trade across counties – 2013**



Source: processing of data from the National Sanitary-Veterinary and Food Safety Authority (NSVFSa)

The processing factories approved for intra-community trade are distributed in almost all counties (except for the counties Mehedinți and Olt), with a total number of 171; the highest concentration was found in the counties Suceava (17) in the region North-East, Constanța (14) in the region South-East and Mureș (12) in the region Center (Figure 2).

The region **Center** has 40 processing factories approved for intra-community trade (23.4% of total) and 307 collection centers approved for intra-community trade (34% of total). It is in this region, more exactly in the county Alba, that the largest dairy company with majority Romanian capital is located, namely “**Albalact SA**”; in the year 2014, this company became the dairy market leader by its turnover (475 million RON), thus surpassing the company Danone (456 million RON), whose portfolio mainly consists of yoghurts. Another important company that carries out its activity in the region Center, Mureș county, on the third place by its turnover in the year 2014 (400 million RON), is “**Friesland Campina Romania SA**” owned by the Dutch dairy group Friesland Campina; this reunited the operations carried out on the Romanian market, through **Napolact**, **Industrializarea Laptelui Mureș** and Friesland Campina Romania, into a single company. “**Fabrica de lapte Brașov**” (Dairy Factory Brasov) is also located in the region Center, local manufacturer of the brands *Olympus* and *Oly*, with a turnover of 306 million RON (fourth place), whose production is 60% directed to the foreign market and 40% goes to the domestic market. The company “**Delaco Distribution SA**” is also found in the county Brașov, region Center, mainly specialized in cheese production. This held the fifth place in the year 2014, according to its turnover (259 million RON). The sixth place, with 217 million RON turnover, is occupied by the “**Hochland România SRL**” group, in the region Center, Mureș county, market leader in cheese spread, cheese cream and kaschkaval, at considerable distance from its competitors. The company “**Covalact SA**” is on the eighth place by its turnover (156 million RON), located in the region Center, Covasna county, one of the greatest dairy producers in Romania, with a tradition of more than 40 years in the production of dairy products.

The second important region as share of dairy factories and milk collection centers is **North-East** with 33 dairy factories (19.3%) and 315 collection centers (35% of total). The company “**Dorna Lactate SA**” is based in this region, in the county Suceava, which ranks seventh place according to its turnover in the year 2014 (181 million RON), with processing factories throughout the region North-East, with tradition in this field. LaDORNA is one of the most developed brands on the dairy market in Romania, market leader in UHT milk, and even since its establishment, leader on the market of organically certified dairy products according to the EU standards.

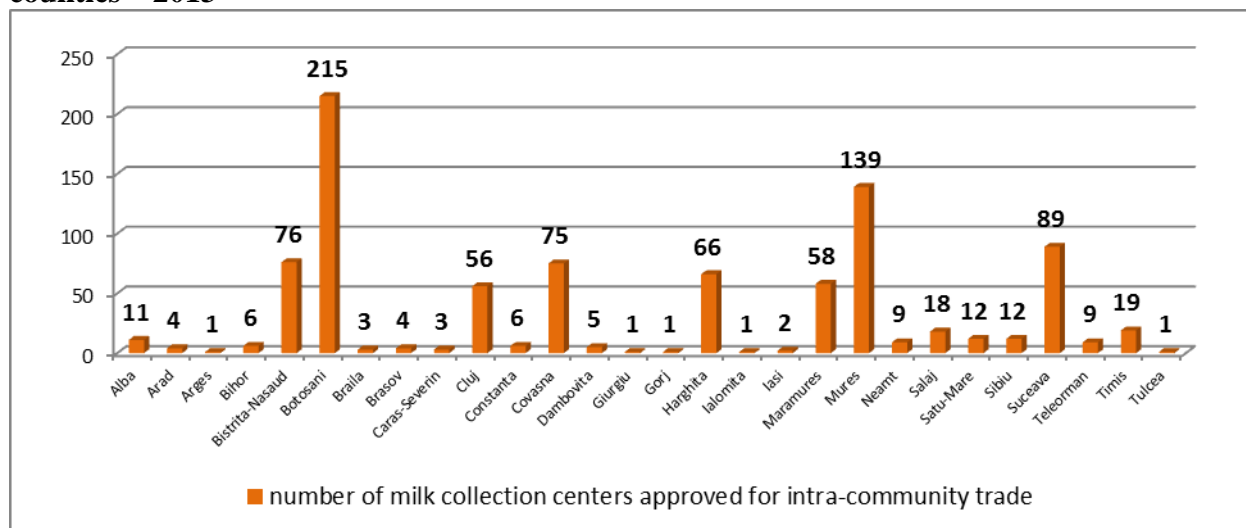
The region **North-West** comes next, in terms of the share of dairy factories and milk collection centers, with 31 factories (18.1%) and 226 collection centers (25% of total).

One of the greatest companies from Romania, “**Danone SA**” has carried out its activity in the region **Bucharest-Ilfov** since 1999, market leader in yoghurts. In the year 2014, it occupied the second place according to its turnover (456 million RON), after being on the first place the previous year. Danone Romania is part of Danone Group, which is present in 120 countries, one of the world leaders in food industry, on the 1<sup>st</sup> place in the world for fresh dairy products and 2<sup>nd</sup> position in the world in bottled mineral waters and food for babies.

“**Simultan SRL**”, commercial company with full private capital, located in the county Timiș, in the region **West**, was established in the year 1994, having as main activity object the manufacturing and sale of fresh dairy products, lactic acid products and cheeses, under its own trademark “*SIM*”. In the year 2014, it was on the ninth position, in top 10, as regards its turnover (106 million RON).

“**Lactag SA**” is also in “top 10” milk processing companies, according to its turnover (72 million RON); the company is located in the county Argeș, in the region **South-Muntenia**, the largest milk processing company in the southern part of Romania, with 50-year tradition and full private capital [5].

The milk collection centers authorized for intra-community trade do not currently operate in all the counties of the country (Figure 3). At national level, there are 902 centers, out of which 39% are located in the counties Botoșani (215) and Mureș (139).

**Figure 3. Distribution of milk collection centers approved for intra-community trade across counties – 2013**

Source: author's processing of NSVFSA data

In the conditions in which more than 90% of the Romanian milk on the market comes from small, subsistence farms (the rest being covered by the large farms), the insufficient milk collection centers and cooling tanks) further impacts the development of the Romanian milk industry. This also as a result of the introduction of the embargo with Russia, when the dairy products with Russia destination were sent back to the border, which overturned many of the short-turn strategies and forecasts not only of the milk producers, but also of the large processors. The analysts' calculations estimated that 30% of the dairy production that had to reach Russia went to the Eastern European countries instead, which had to absorb the whole milk quantity, also helped by the favourable prices, much under the domestic production prices.

## CONCLUSIONS

The average milk yield, one of the lowest in Europe (3704 liters/cow head-2014) is an explanation for the lack of sector competitiveness. In the territory, the region Bucharest-Ilfov is above the national average in this respect, with an average yield of 5200 liters/cow head in 2014.

The fact that the average farm size in Romania is 4000-7999 euro (39.2% at national level) results in the low possibility to access the EU funds for farm development by many farmers, as the minimum threshold is 8000 euro.

The analysis of milk collection and processing by development regions reveals that the region Center stands out in this respect, as the largest milk quantity for processing is collected in this region (37.2%). This region also concentrates the greatest number of dairy factories approved for intra-community trade (40 factories), accounting for 23.4% of total. In terms of turnover, six of the most important dairy companies operate in the region Center, which cumulated 1813 million RON turnover in the year 2014, i.e. 69% of total top 10 companies.

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