

Considerations on Cattle Stock and Cow Fresh Milk Production in the EU Countries

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Abstract

The paper aimed to analyze the evolution of cattle stock and cow milk production in order to point out the main trends and differences between the EU-27 member states in the period 2004-2008. The data collected from FAO Stat, 2010 have been processed calculating the fixed basis index, average annual rhythm index and also the share of each EU state in cow milk production at the EU and world level. The main trends in the EU concerning cow milk sector are the continuous decrease in cattle stock, the increase of cow milk yield under the conditions of keeping a constant milk production and also milk production per capita. In 2008, the EU-27 was raising 90,478 thou cattle, and produced 149,388 thou tons cow fresh milk. The EU -27 is placed on the 5th position for number of cattle and on the 1st position for cow milk production, producing 25.8 % of world production. The largest milk producers in the EU-27 are Germany, France, United Kingdom, Poland, Netherlands, Italy, Spain, Ireland, Romania and Denmark, whose contribution to the EU productions is 82.82 %.

Keywords: analysis, cattle, cow milk, EU-27

1. Introduction

The EU countries are an important source of cow fresh milk giving a substantial contribution to world milk production as presented by Georgescu Gh. and all [1].

The EU-27 producers 25.8 % of world cow milk production keeping the 1st position and raises about 29,700 thousands cattle, coming on the 5th position in the world behind India, Brazil, China and U.S.A. [2, 3]. The CEECs have deep impact upon cattle stock and milk production in the EU market as discussed by Popescu Agatha and all [4] and Romanovich Mikhail and all [5].

In this context, the purpose of the paper is to analyse the evolution of cattle stock and cow milk production in the EU-27 in the period 2004-2008 in order to point out the main trends and differences from a country to another, using the data collected from FAO Stat, 2010 [6].

2. Materials and methods

In order to set up this paper, the data have been collected from FAO Stat 2010, for the period 2004-2008. The indicators considered in this study are: number of cattle, cow milk production (whole), milk production per inhabitant.

The analysis is based on statistical methods:

$$\text{Fixed Based Index: FBI} = \frac{X_n}{X_0} \cdot 100$$

$$\text{Annual Average Rhythm Index} =$$

$$\bar{R} = \left(\sqrt[n]{\frac{X_i}{X_0}} - 1 \right) \cdot 100$$

Milk Production and Cattle Stock Share of each EU countries in EU-27 milk production and cattle stock :

$$S\% = \frac{X_i}{\sum_{i=1}^n X_i} \cdot 100$$

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3. Results and discussion

Cattle Stock have registered a continuous decrease in the EU-27 from 91,933 thousand heads in 2004 to 90,478 thousand heads in the year 2008, meaning a reduction by 1.59 % for the analyzed period. Analyzing the situation by country, the number of cattle has increased by 2.9 % in France, by 3.4 % in Greece, by 5.3 % in Latvian, by 4.8 % in Luxemburg, by 5.5 % in Malta, by 3.2 % in Netherlands, by 7.5 % in Poland, by 3.9 % in Portugal, by 6.7 % in Slovenia. The other EU countries have recorded a decrease of cattle in the analyzed period. The highest decrease by 26.8 % in cattle was recorded by Belgium (Table 1).

Table 1. Cattle Stock in the EU-27 during the period 2004-2008 (thou heads)

Country	2004	2005	2006	2007	2008	2008/2004 %
Austria	2052	2008	2002	2003	2000	99.8
Belgium	2739	2699	2669	2649	2006	73.2
Bulgaria	728	671	621	628	602	82.6
Cyprus	59	60	58	56	56	94.9
Czech Republic	1,428	1,397	1,374	1,391	1,363	95.4
Denmark	1,646	1,570	1,535	1,566	1,564	95.0
Estonia	257	250	250	245	240	93.3
Finland	969	959	949	927	915	94.4
France	19,320	19,310	19,418	19,359	19,887	102.9
Germany	13,196	13,035	12,748	12,687	12,970	98.2
Greece	603	605	618	629	624	103.4
Hungary	739	723	708	702	705	95.3
Ireland	7,016	6,983	6,916	6,704	6,720	95.8
Italy	6,504	6,304	6,255	6,117	6,283	96.6
Latvia	379	371	385	377	399	105.3
Lithuania	812	792	800	839	788	97.0
Luxemburg	187	185	184	192	196	104.8
Malta	18	19	20	19	19	105.5
Netherlands	3,767	3,799	3,749	3,763	3,890	103.2
Poland	5,353	5,483	5,606	5,696	5,757	107.5
Portugal	1,389	1,443	1,441	1,407	1,443	103.9
Romania	2,897	2,808	2,862	2,934	2,819	97.3
Slovakia	593	540	528	508	205	84.6
Slovenia	450	451	453	454	480	106.7
Spain	6,653	6,463	6,184	6,585	6,585	98.9
Sweden	1,628	1,605	1,590	1,559	1,558	95.7
U. Kingdom	10,551	10,770	10,579	10,304	10,107	95.7
EU-27	91,933	91,303	90,502	90,300	90,478	98.41
2004=100	100	99.31	98.44	98.22	98.41	-

The top 10 EU countries, in the decreasing order of cattle number are: France, keeping the first position, because it raises 21.97 % of the EU cattle stock, than Germany on the 2nd position with 14.33 % of the EU 27 cattle stock and United Kingdom (11.17 %), Ireland (7.42 %), Spain (7.28 %), Italy (6.94 %), Poland (6.36 %), Netherlands

(4.30 %), Romania (3.11 %), Denmark (1.73 %). All these 10 countries are raising 84.61 % of the EU-27 cattle stock . (Table 2).

Table 2. The first 10 countries in the top and their share in the EU-27 cattle stock

Country	2004	2008
France	21.01	21.97
Germany	14.35	14.33
United Kingdom	11.47	11.17
Ireland	7.63	7.42
Spain	7.23	7.28
Italy	7.07	6.94
Poland	5.82	6.36
Netherlands	4.09	4.30
Romania	3.15	3.11
Denmark	1.79	1.73
Total 10	83.61	84.61

Table 3. Cow Fresh Milk (whole) (Thousand Metric Tons)

Country	2004	2005	2006	2007	2008	2008/2004%
Austria	3,137	3,114	3,147	3,155	3,196	101.8
Belgium	3,060	3,025	2,837	2,879	2,849	93.1
Bulgaria	1,345	1,287	1,299	1,148	1,143	84.9
Cyprus	151	147	149	144	152	100.7
Czech Republic	2,680	2,820	2,767	2,756	2,801	104.5
Denmark	4,569	4,584	4,627	4,650	4,720	103.3
Estonia	652	670	641	692	694	106.4
Finland	2,449	2,433	2,413	2,356	2,311	94.3
France	24,499	24,885	24,195	24,374	24,516	102.3
Germany	28,245	28,453	27,995	28,403	28,656	101.4
Greece	774	791	808	801	800	103.3
Hungary	1,895	1,929	1,844	1,842	1,840	97.1
Ireland	5,321	5,378	5,411	5,460	5,373	100.9
Italy	10,728	11,013	10,989	10,618	11,286	105.2
Latvia	784	807	812	838	832	106.1
Lithuania	1,842	1,854	1,884	1,931	1,950	105.8
Luxemburg	269	270	268	274	278	103.3
Malta	41	41	41	40	40	97.5
Netherlands	10,905	10,847	10,989	11,062	11,286	103.4
Poland	11,822	11,923	11,982	12,096	12,425	105.1
Portugal	1,950	1,991	1,924	1,909	1,961	100.5
Romania	5,053	5,008	6,011	5,652	5,468	108.2
Slovakia	1,079	1,100	1,092	1,075	1,057	97.9
Slovenia	651	660	659	642	666	102.3
Spain	6,384	6,370	6,192	6,143	6,340	99.3
Sweden	3,275	3,208	3,172	3,025	3,029	92.4
U. Kingdom	14,555	14,473	14,316	14,023	13,719	94.2
EU-27	148,065	149,081	148,464	147,988	149,388	100.89
2004=100	100	100.68	100.26	99.94	100.89	-

Cow Fresh Milk. In the year 2008, the EU-27 produced 149,388 thousand tones cow fresh milk , by 0.89 % more than in the year 2004. Milk production has varied from a year to another, registering the highest performance in the year 2008 – 149,388 thou tons and the lowest one 147,988 thou tons in the year 2007. If we look at

the figures presented in Table 2, we notice that almost all the EU countries have registered an increased cow milk production in 2008 compared to 2004, except Belgium, Bulgaria, Finland, Hungary, Malta, Slovakia, Spain, Sweden and United Kingdom. The fact that cow milk production has registered an increase, while the number of cattle decreased, is due to the increasing trend in milk yield in most of the countries (Table 3).

The highest cow milk production increase is present in Romania (8.2 %), but also in Estonia (6.4 %), Lithuania (5.8 %), Poland (5.1 %), Italy (5.2 %), where milk yield has significantly grown up. The top 10 EU countries for cow milk production are Germany, France, United Kingdom, Poland, Netherlands, Italy, Spain, Ireland, Romania and Denmark, producing together 82.82 % of the EU-27 cow milk production (Table 4).

In the year 2008, cow milk production increased robustly as a result of strong prices in 2007 and as expansion in member states production quota, but under feed supplies it started to fall off by the mid of the year, so that in the year 2008, it increased by 0.94 % reaching 149,388 thousand tons.

In a number of key producing states, production has started to adjust to expanded quotas, although high input costs have limited expansion to other countries.

Table 4. The first 10 EU countries in the top and their share in the EU cow milk production

Country	2004	2008
Germany	19.07	19.18
France	16.51	16.41
United Kingdom	9.83	9.18
Poland	7.98	8.31
Netherlands	7.36	7.55
Italy	7.24	7.55
Spain	4.31	4.24
Ireland	3.59	3.59
Romania	3.41	3.66
Denmark	3.08	3.15
Total Top 10	82.38	82.82

Table 5. The Top 10 Cow's Milk Producing Countries in the world in the year 2008 ('000 tons)

Country	Cow Milk Production	Country	Cow Milk Production
USA	86,178	Brazil	27,752
India	44,100	France	24,516
China	35,853	New Zealand	15,216
Russian Federation	32,117	United Kingdom	13,719
Germany	28,656	Poland	12,425

A number of 4 EU countries: Germany, France, United Kingdom and Poland are among the top 10 cow's milk producing countries in the world (Table 5).

Average Annual Decreasing Rhythm is 0.27 % for cattle stock and the average annual increasing rhythm for cow milk production is 0.23 % for the period 2004-2008.

According to the USDA, 2010, the EU-27 milk production will reach 138,720 thousand metric tons and cattle stock will account for 29,700 thousand heads in the year 2011. Therefore, the EU 27 will keep first position in the world for milk production and 5th position for cattle number.

Cow Milk Production per inhabitant is over 300 kg as EU-27 average. A number of 14 EU states have performed a higher cow milk production per inhabitant as follows: Ireland 1,240.5 kg, Denmark 861.9 kg, Netherlands 687.9 kg, Lithuania 579.2 kg, Luxemburg 574.7 kg, Estonia 517.5 kg, Finland 436 kg, Austria 384.2 kg, France 383 kg, Latvia 366.39 kg, Germany 348.5 kg, Slovenia 331.3 kg, Sweden 329.8 kg and Poland 325.9 kg.

Table 6. Cow Milk Production per inhabitant in the EU-27 (kg/capita)

Country	2004	2008	2008/2004%
Austria	385.4	384.2	99.68
Belgium	294.3	267.0	90.72
Bulgaria	172.4	149.6	86.77
Cyprus	206.7	192.6	93.17
Czech Republic	262.4	269.8	102.82
Denmark	846.4	861.9	101.83
Estonia	482.5	517.5	107.25
Finland	469.1	436.0	92.94
France	406.1	383.0	94.31
Germany	347.2	348.5	101.84
Greece	70.1	71.3	101.71
Hungary	187.3	183.1	97.75
Ireland	1321.1	1240.5	93.89
Italy	185.3	189.3	102.15
Latvia	338.0	366.39	108.39
Lithuania	534.5	579.2	108.36
Luxemburg	595.6	574.7	96.49
Malta	102.5	97.5	95.12
Netherlands	670.7	687.9	102.56
Poland	309.5	325.9	105.39
Portugal	186.1	184.6	99.19
Romania	232.7	253.9	109.11
Slovakia	200.5	195.7	97.60
Slovenia	326.0	331.3	101.62
Spain	150.7	140.0	92.89
Sweden	365.2	329.8	90.30
U. Kingdom	243.80	224.1	91.91
EU-27	302.91	300.1	99.07

In comparison to cow milk production per capita registered in the year 2004, in the year 2008, a

number of 11 EU states have recorded an increase: Romania 9.11 %, Latvia 8.39 %, Lithuania 8.36 %, Estonia 7.25 %, Poland 5.29 %, Czech Rep. 2.82 %, Netherlands 2.56 %, Italy 2.15 %, Germany 1.84 %, Denmark 1.83 %, Greece 1.71 (Table 6).

Taking into account that in the year 2008, world cow's milk production registered over 578 million tons and world population reached 6,829 million inhabitants, the world average cow milk production per capita is 84.63 kg. Compared to world average, the EU-27 average cow's milk production is 3.54 higher, accounting for 300.1 kg/capita. Greece is the only EU country which has registered 71.3 kg/capita, because cow milk is not traditional compared to sheep and goat milk.

From this analysis resulted that Germany is the 5th largest producer of milk in 2008, accounting for 28,656 '000 tons and also the 2nd milk processor after the USA. Milk is produced by 110,000 dairy farmers rearing about 37.76 cows in average whose average daily production is 732 kg, meaning in average 19.5 kg/cow. This performance is due to the stable milk production registered since 1990 and milk quota system. Milk yield increased by 2 % per year, although the number of dairy cows decreased by 2 % per year. About 95 % of milk production is delivered to milk processors and the remaining amount either is used as home consumption, feeding calves or is sold directly to consumers. As an EU member, Germany exports about 40 % of its milk production but also imports 30 % of its consumption needs. The country is 116-227 % self sufficient in milk, which translates into an important surplus of 6 million tons per year.

4. Conclusions

In 2008, the EU 27 was raising 90,478 thou cattle by 1.59 % less than in 2004. However, it still keeps the 5th position in the world, growing an important number of cattle as an important milk and meat source.

The largest cattle breeding countries in the EU-27 are, in the decreasing order: France, Germany, United Kingdom, Ireland, Spain, Italy, Poland, Netherlands, Romania and Denmark, which are growing 84.61 % of the EU cattle stock. In 2008, the EU-27 produced 149,388 thou tones cow fresh milk, by 0,89 % more than in the year 2004.

The most important EU-27 milk producers are Germany, France, United Kingdom, Poland, Netherlands, Italy, Spain, Ireland, Romania and Denmark, which are able to contribute by 82.82 % to the EU-27 milk production.

Germany, France, U. Kingdom and Poland are among the top 10 cow's milk producers in the world.

As a result, average cow milk production per EU inhabitant is 300 kg/year, but there are countries such as: Ireland, Denmark, Netherlands, Lithuania, Luxemburg, Estonia, Finland, Austria, France, Latvia, Germany, Slovenia, Sweden and Poland, whose performance is higher. Milk production per EU inhabitant is 3.54 higher than the world average cow milk production, 84.63 kg/year.

Germany is the 5th largest milk producer and the 2nd milk processor in the world.

Among the EU countries, Romania occupies the 9th position for cattle stock, the 9th position for cow fresh milk production and the 17th position for cow milk production per capita.

The main trends in the EU-27 are the continuous decrease in cattle stock, the constant cow milk production and production per capita and, as a result, the increase of milk yield.

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