

STUDY REGARDING THE TRENDS IN THE WORLD AND EUROPEAN GOAT MILK PRODUCTION

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Abstract

The paper aimed to identify the trends in the world and European goat milk production in the period 1999-2010 based on FAOStat data base, using the index method. The results have shown that in 2009, at world level there were 867.9 million goats by 18.91% more than in 1999, and the world goat milk production accounted for 15,128 thousand Metric tones, being by 19.52% higher than at the beginning of the analyzed period. India, China, Bangladesh and Pakistan keep 46.7% of the world goat livestock, and 55.60% of the world milk production is produced by India, Bangladesh, Sudan and Pakistan. In 2010, the EU had 13,026 million goats by 9.65% less than in 1999. Greece, Spain and France keep 70% of the EU goat livestock and 0.88% at world level, contributing by 10.57% to the world goat milk production. The EU contribution to the world goat milk production is 17%, being the area where the highest records are achieved per goat. Romania has a high production potential, coming on the 5th position for the goat livestock and on the 4th one for goat milk production in the EU. As a conclusion, goat milk production will continue to increase due to the high consumption demand.

Key words: goat livestock, goat milk, world production, EU, trends

INTRODUCTION

Besides cow and buffalo milk, goat milk has an exceptional quality given by its chemical composition rich in various nutrients [1, 4, 5], it is well tolerated by individuals sensitive and allergic to cow milk and has a benefic effect on health and a high digestibility [5, 9, 10].

Goat milk can be consumed fresh or processed in cheese, butter, ice-cream, yogurt, condensed milk, evaporated or powdered milk, kefir, cajeta etc [14].

Goats are easy to grow due to their adaptability and resistance to various conditions and can be both manually and mechanically milked [1, 13]. They play a key role in the pastoral areas being grown in family households but also in small farms in the developing countries as well as in modern and profitable larger farms like the ones operating in Europe [7, 11].

The increasing demand for milk and dairy products has stimulated production and trade. Despite that goat milk comes on the 3rd position after cow and buffalo milk in the

world production, it has a higher share in production and consumption of many countries, only 5% being subject of cheese processing and marketing [6].

In this context, the paper aimed to analyze the evolution of goat livestock and milk production in order to identify the major trends at world and EU level during the last decade.

MATERIAL AND METHOD

In order to set up this paper, the statistical data provided by FAOStat for the period 1999-2010 [15] have been processed using index, share and comparison methods. The main specific indicators were: evolution of goat livestock and milk production at world level and by continent as well as at the EU level and by member state.

RESULTS AND DISCUSSIONS

World goat livestock and its distribution by continent

The number of goats has increased by 18.91% in the analyzed period, reaching 867.9 million heads in 2009. Most of livestock is in Asia (59.5%), followed by Africa (34%), the Americas (4.3%), Europe

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(1.8%) and Oceania (0.4%), which proves that the highest share is in the developing countries where goat milk is a basic food especially for rural population (Table 1).

Table 1 Goat livestock distribution by continent, 1999-2009

Year	MU	Asia	Africa	Americas	Europe	Oceania	Total world
1999	Million heads	447.3	227.8	33.7	19.0	2.1	729.9
	%	61.3	31.2	4.6	2.6	0.3	100.0
2009	Million heads	516.7	294.8	37.1	15.9	3.4	867.9
	%	59.5	34.0	4.3	1.8	0.4	100.0
2009/1999	%	115.49	129.41	110.08	83.68	161.90	118.91

Source:FAOStat, 2010.Own calculations

Since 1990 when at world level there were 590.1 million goats and by 2010, goat livestock increased by 56 %, accounting for 920.6 million heads. Goats are spread in many countries in the world due to their high adaptability to different environmental conditions and nutritional regimes, high productivity and low maintainance cost.

In 2008, the goat/sheep ratio was 1/1.25, and in 2010 it reached 1/1.17 showing a faster growth rate for goat livestock and a decline of sheep herds [2, 3, 8].

The top 10 countries with the most numerous goat livestock are India, China, Bangladesh, Pakistan, Nigeria, Sudan, Iran, Etiopia, Indonesia and Mali, which together raised 66.3 % of world goat livestock in 2010 (Table 2).

Table 2 Top 10 countries based on goat livestock in 2010

Country	Number of goats (Million heads)	Share in world livestock (%)
India	154.0	16.7
China	150.7	16.4
Bangladesh	65.0	7.1
Pakistan	59.9	6.5
Nigeria	56.5	6.1
Sudan	43.4	4.7
Iran	25.7	2.8
Ethiopia	22.0	2.4
Indonesia	16.8	1.8
Mali	16.5	1.8
Total world	920.6	100.0

Source:Dar, A., 2012 [3].

If by 2010, China came on the 1st position, at present India occupies the 1st position for the number of goats. The 1st four countries: India, China, Bangladesh and Pakistan hold together 46.7% of world goat livestock.

The most numerous goat livestock is in Asia (India, China, Pakistan, Bangladesh, Iran), Africa (Nigeria, Ethiopia, Somalia, Sudan, South Africa), Europe (Greece, Spain, France), North America (Mexico, USA and Canada), Central America (Haiti, Jamaica and Cuba), South America (Brazil, Argentina, Venezuela, Peru, Bolivia and Columbia) [7].

Taking into account that cow number has increased by 5% per year at world level, goat number has grown up by 4% and sheep number was declining by 10% yearly, this shows the growing importance of goats among milk supplying species [2].

Goat livestock in the EU and by member state

Europe comes on the 4th position after Asia, Africa and South America concerning goat livestock. In 2010, the EU had 13.026 million goats by 9.65% less than in 2000 (14.4 millions), reflecting the tendency to reduce its livestock.

If in 2009, the EU weight in the world herd of goats was 14.4%, in 2009 it fell to 11.9%.

Analysing the situation by member state in 2010, one can notice that 10 countries hold most of the herd of goats in the community: Greece 37.23%, Spain 22.52%, France 10.35%, Italy 7.37%, Romania 7.04%, Portugal 3.4%, Bulgaria 2.76%, the Netherlands 2.7%, Cyprus

1.6% and Germany 1.15%, which together totalized 96.12%. Three countries have to be highlighted: Greece, Spain and France which accounted for 70.1% of the EU goat livestock.

An important growth of goat number was noticed in the period 2000-2010 in the following countries: Luxembourg +408%, Romania +64.39%, Latvia +62.96%, Estonia +44.4%, Belgium +35.4%, Ireland +24.69%,

France +11.4%, Germany +10.06%, the Netherlands +113.83%, Spain +11.67% and United Kingdom +9.50%, while in the other countries it was registered a decline. The highest increase was recorded in Luxembourg (5 times more goats in 10 years), and the deepest decline was noticed in Hungary (-70%) and Bulgaria (-66%). (Table 3).

Table 3 Distribution of goat number by the EU member state, 2000-2010

Country	2000		2010		2010/2000 %
	Heads	%	Heads	%	
Austria	72,254	0.50	68,188	0.52	94.37
Belgium	16,248	0.11	22,000	0.16	135.40
Bulgaria	1,046,290	7.24	360,822	2.76	34.48
Cyprus	346,000	2.39	208,571	1.60	60.28
Czech Rep.	31,988	0.22	22,486	0.17	70.29
Denmark	-	-	-	-	-
Estonia	2,700	0.01	3,900	0.02	144.44
Finland	8,564	0.05	4,890	0.03	57.09
France	1,210,520	8.38	1,349,030	10.35	111.44
Germany	135,000	0.93	149,936	1.15	110.06
Greece	5,614,450	38.90	4,850,000	37.23	86.38
Hungary	189,000	1.30	58,000	0.44	30.68
Ireland	8,100	0.05	10,100	0.07	124.69
Italy	1,397,000	9.67	961,000	7.37	68.79
Latvia	8,100	0.05	13,200	0.10	162.96
Lithuania	24,700	0.17	14,700	0.11	59.51
Luxembourg	1,000	0.006	5,084	0.03	508.40
Malta	8,000	0.5	5,110	0.03	63.87
Netherlands	165,000	1.14	352,830	2.70	213.83
Poland	190,000	1.31	122,123	0.93	64.27
Portugal	630,000	4.36	444,000	3.40	70.47
Romania	558,000	3.16	917,300	7.04	164.39
Slovakia	50,905	0.35	35,300	0.27	69.34
Slovenia	14,643	0.10	29,896	0.22	204.16
Spain	2,627,000	18.20	2,933,800	22.52	111.67
Sweden	-	-	-	-	-
United Kingdom	77,164	0.66	84,500	0.78	109.50
Total EU-27	14,432,626	100.00	13,026,766	100.00	90.25

Source:FAOStat, 2012. Own calculations.

The differences from a country to another are based on specific reasons such as: attractiveness of bovine species more efficient in milk production, and poor support for goat farming given by the Romanian Government etc.

France occupies a special place in the EU and world, the increase by 11% of goat number is not at random, being stimulated by the grown demand for goat dairy products on the domestic and external market, as well as

by the financial support for goat breeders and milk processors offered by professional and interprofessional federations: FNEC (Federation Nationale des Eleveurs de Chevres) and ANICAP (Association Nationale Interprofessionnelle Caprine).

Romania is ranked 5 in the EU-27 with 917,300 goats, representing 7.04% of the community livestock. The growth of goat number has been intensified during the recent years, mainly after Romania's entry into the

EU, being an attractive sector for breeders due to the lack of milk quota, SAPARD Programme which allowed the establishment of new modern goat farms, and promoted goat milk and especially dairy products [12].

World goat milk production and its distribution by continent

In 2010, the average world milk consumption reached 104.7 kg, of which 39% in Asia, 29% in Europe, 13% in North America, 9% in South America, 6% in Africa, 3% in Central America and 1% in Oceania.

Europe recorded 277 kg/year milk consumption per inhabitant, while Asia registered the lowest level [17]. This stimulated milk production and trade with dairy products which accounted for 51.9 million tons milk equivalent in 2010 and led to an increase in milk price by 15% in Europe and 27% in the USA, compared to 2009.

In 2009, world milk production reached 696.5 million tons of which 83.3% cow milk, 12.96% buffalo milk, 2.17% goat milk, 1.28% sheep milk and 0.23% camel milk [12]. Therefore, goat milk comes on the 3rd position as importance in world milk production.

In 2009, world goat milk production accounted for 15,128 thousand MT, being by 19.52% higher than in 1999. If one takes into account that livestock increased by 18.91% in the same interval, this means that production growth was determined by a higher productivity.

The largest amount of goat milk is produced in Asia (58.89%), then in Africa (21.19%), Europe (16.32%) and Americas (3.59%) (Table 4).

Table 4 Distribution of goat milk production by continent, 1999-2009

Year	MU	Asia	Africa	Americas	Europe	Oceania	Total world
1999	1,000 MT	7,011	2,615	555	2,476	0.027	12,657
	%	55.39	20.66	4.38	19.56	0.01	100.00
2009	1,000 MT	8,909	3,206	544	2,469	0.040	15,128
	%	58.89	21.19	3.59	16.32	0.01	100.00
2009/1999	%	127.07	122.60	98.01	99.71	148.14	119.52

Source:FAOStat, 2010, Own calculations.

The most important producing countries are India, Bangladesh, Pakistan and Sudan.

Despite that Europe had 19 million goats in 2010, accounting for only 2.5% of world livestock, it produced 20% of world milk production [7].

According to FAOStat, 2008, goat milk production in the top producing countries was: India 4 million MT, Bangladesh 2.2 million MT, Sudan 1.5 million MT and Pakistan 0.7 million MT, which together accounted for 8.4 million MT, that is 55.6% of world goat milk. On the 5th, 6th and 7th positions in the world are 3 European countries: Spain, France and Greece accounting for 7.71 million goats, representing 0.88% of world livestock and producing 1.6 million MT milk, that is 10.57% of world goat milk.

Goat milk yield varies from a country to another, being smaller in the developing countries compared to the one from the

developed ones. The highest milk yield was registered in France, 703.8 kg/goat/year, and the lowest one in Iran, 29.9 kg/head.

According to FAOStat, 2010, goat milk yield by continent was the following one: Africa 41.6 kg, North America 178.7 kg, South America 32.1 kg, Asia 78.2 kg and Europe 250.7 kg [7].

In comparison with the year 2009, in 2010, global goat milk production registered a moderate growth rate 0.2%, but higher growth rates were noticed in Turkey (+3.5%), France (+6.4%), while in other countries it was registered a decline: the Netherlands (-8.6%), Spain (-2.9%) and Mexico (-1%) [17].

Despite China is considered one of the largest goat breeding country in the world, it comes only on the 10th position for goat milk production and on the 3rd position for goat milk yield after France and Spain.

Most of goat milk is used for self-consumption, which is typical in the Asian and African countries. A smaller percentage of world goat milk is sold as fresh milk and

this is specific to the American continent. A very small amount of world milk (less than 5%) is processed in cheese and other dairy products and mainly in the EU countries [7].

Table 5 Goat milk production in the main EU producing countries, 1999-2009

Country	1999		2009		2009/1999 %
	Metric Tons	%	Metric Tons	%	
Bulgaria	200,000	10.57	64,090	3.28	32.04
Czech Rep.	15,154	0.80	8,652	0.44	57.09
Estonia	549	0.02	477	0.02	86.88
France	495,800	26.21	623,460	31.92	125.74
Greece	526,142	27.82	505,000	25.86	95.98
Hungary	4,165	0.22	3,200	0.16	76.83
Italy	114,400	6.04	46,000	2.35	40.20
Latvia	1,726	0.09	3,392	0.17	196.52
Lithuania	12,320	0.65	4,063	0.20	32.97
Malta	277	0.01	1,296	0.06	467.87
Portugal	34,393	1.81	26,877	1.37	78.14
Romania	126,360	6.68	183,346	9.38	145.09
Slovakia	13,200	0.69	8,200	0.41	62.12
Slovenia	2,160	0.11	1,539	0.08	71.25
Spain	404,100	21.37	473,000	24.30	117.05
Total EU	1,890,923	100.00	1,952,592	100.00	103.26

Source:FAOStat, 2010, [12].Own calculations

Goat milk production in the EU

In Europe, goat farming was mainly oriented on milk which led to the highest performance. Despite that Europe has only 2.17% of world goat livestock, its contribution to world goat milk production is about 17% [8].

In 2009, the EU produced 1.95 million MT, by 3.36% more than 1999 (1.89 million MT). Therefore, a slight growth was recorded by the EU, despite that in the same period of time the EU goat livestock declined by 17.37%, showing that producers are mainly focused on productivity.

The most important goat milk producing countries in the EU are: France, Greece, Spain, Romania, Bulgaria, Italy and Portugal, accounting for 98.46 % of the EU goat milk.

The highest performance was recorded by three countries: France, Greece and Spain producing 82.08% of the EU goat milk.

France carried out the most spectacular performance worldwide through a rigorous selection within Saanen and Alpine breeds breeding programmes, and goat milk processing and marketing programmes as well.

In the period 1999-2009, goat milk production increased in many EU countries as

follows: Malta (+367%), France (+25%), Latvia (+96.52%), Romania (+45.09%), Spain (+17.05%), and declined in other countries, but the deepest decrease was recorded in Bulgaria (-68%).

Romania comes on the 4th position in the EU, producing 183,346 MT, representing 9.38 % market share and reflecting a good potential. Taking into consideration that in 2009, Romania had 898,000 goats, by 53.5% more than in 1999, this means an average increase of 31,300 heads per year. Goat milk production increased by 45.09% in the same interval from 126,360 MT to 183,346 MT, reflecting an average annually gain of 5,598,6 MT.

Therefore, Romania is ranked 5 in the EU for goat livestock and 4 for goat milk.

Based on FAO-OECD and FAPRI short-term forecast, it is estimated a low growth of goat milk production in the EU countries compared to India, China, Argentina and Brazil. On long term it is expected an increase of 1.8%-1.9% per year for milk production at world level [16]. This proves that goat milk production could continue to increase.

Milk consumption is expected to grow taking into account the popularity of dairy products, demographic and income growth, development of trade distribution systems, processing industry and state support in some countries.

CONCLUSIONS

World goat livestock is continuing growing especially in the developing countries contributing to world milk production.

In Europe, the decline of goat number is compensated by an increased milk performance with a positive impact on the continent contribution to world goat milk.

While in the developing countries, goat milk will continue to be a basic food for rural population, in the developed ones its processing will continue to be a priority because of the increased demand for dairy products.

Consumption of goat milk and dairy products will continue to grow because of their nutritive and therapeutical value and special flavor as well.

The growth of goat milk production should be supported by breeding programmes focused on goat milk, fat and protein yield, adaptability to environmental conditions, reproduction performance, growth intensity, feeding and maintaining.

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