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## Conference Paper

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## WORLDWIDE TRENDS AND ORIENTATIONS OF RAISING GOATS

CHETROIU RODICA<sup>1</sup>, CĂLIN ION<sup>2</sup>, NICULESCU GEORGETA CARMEN<sup>3</sup>

**Abstract:** *Worldwide, raising goats had generally an ascending trend, both in terms of stocks and the production level. Thus, according to FAO statistics, in 2011 there were over 875.5 million heads of goats. The largest number of goats was in the year 2011 in Asia - over 539 million heads, representing 61.6% of the total, followed by Africa with over 276 million heads, holding a share of 31.6% of livestock globally. At European level, in 2011, the largest goat populations were in Greece and Romania ranks the fifth continental level, with about 1.24 million heads. If in 2000 the production of goat milk globally was 12.78 million tons, in 2011 it reached an amount of 15.86 million tons, registering a growth rate of over 24%. The general trends of goat production systems are increasing size of farms, while reducing their number, decreasing pastoral practices in the milk production, enlarging the stocks of major milk producing breeds and increasing the number of projects for the conservation of local breeds.*

**Keywords:** *goats, trends, heads, milk, production*

### INTRODUCTION

Currently worldwide, raising goats sector tends to become increasingly important for the national economies, being even a factor of economic development, particularly for rural areas. In all countries, due to accelerated increasing of human population number, resorts to more efficient exploitation of animal resources, applying more efficient technologies for breeding and exploitation of zootechnical interest animals.

Research conducted is consistent with the trends of growing and exploitation goats, meaning increasing number of flocks and demand increasingly higher for products of this species, worldwide.

### MATERIAL AND METHODS

The paper is based on centralization, statistical processing and analysis of data on global goat population, their productions and study of various breeding systems characteristics, as well as their trends.

### RESULTS AND DISCUSSIONS

Worldwide, raising goats has been generally upward trend, both in terms of the stock and the production level. Thus, according to FAO statistics, in 2011 there were over 875.5 million heads of goats.

Table 1 shows that the largest number of goats were, in the year 2011, in Asia - over 539 million heads, representing 61.6% of the total, followed by Africa with over 276 million heads, holding a share of 31.6% of global livestock. Europe is in the fourth place, with only 0.56% of the total number of goats.

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Table 1 The evolution of the worldwide goat population, by continents (thousand heads)

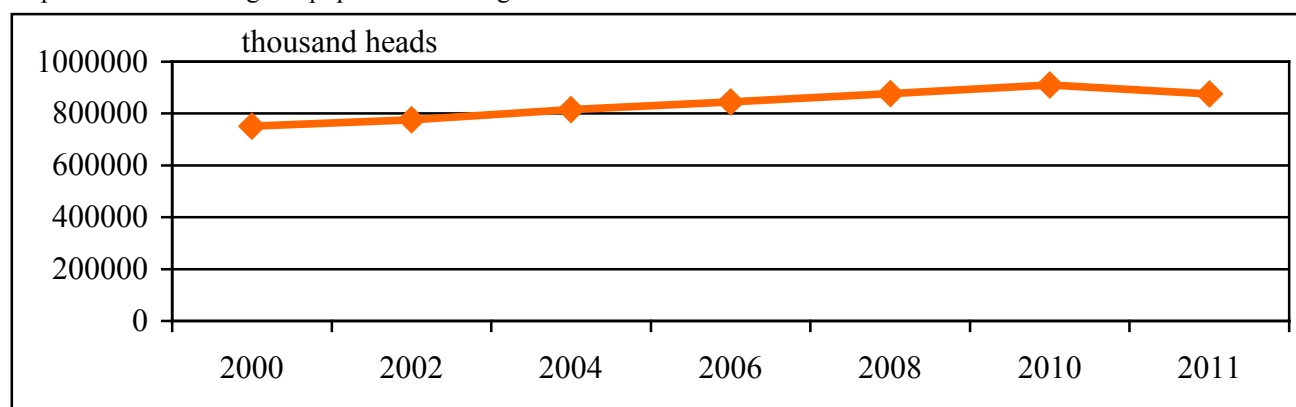
Continent	2000	2002	2004	2006	2008	2010	2011	2011 compared to 2000 %
Africa	236624	254741	272066	284980	301222	312448	276684	+16,93
America	34935	36187	37088	38067	37507	37595	37678	+7,85
Asia	458521	463395	484398	499138	516925	537766	539178	+17,60
Europa	18941	18214	18635	17886	17819	17115	17072	-9,87
Oceania	2396	3219	3372	4197	3618	4923	4917	+105,22
<b>TOTAL</b>	<b>751417</b>	<b>775756</b>	<b>815559</b>	<b>844268</b>	<b>877091</b>	<b>909847</b>	<b>875529</b>	<b>+16,52</b>

Source: FAOSTAT

Compared to 2000, in 2011, worldwide, there is an increase of 16.52%. Among continents, Oceania marks the highest growth rate of 105.22%, doubling its herds, significantly, given that it ranks last in the number of heads. In Europe, however, the goat population fell to 9.87% during the analyzed period. The evolution of the goat population globally during 2000 - 2011 is shown in Graphic 1.

Worldwide, in 2011, the country with the largest goat population was China, with over 142 million head, followed by Pakistan, with about 61.4 million heads and Nigeria, with 57,3 million heads.

Graphic 1. Worldwide goats populations during 2000-2011



Data source: FAOSTAT

The top eight countries in the world with the biggest goat population is shown in Table 2.:

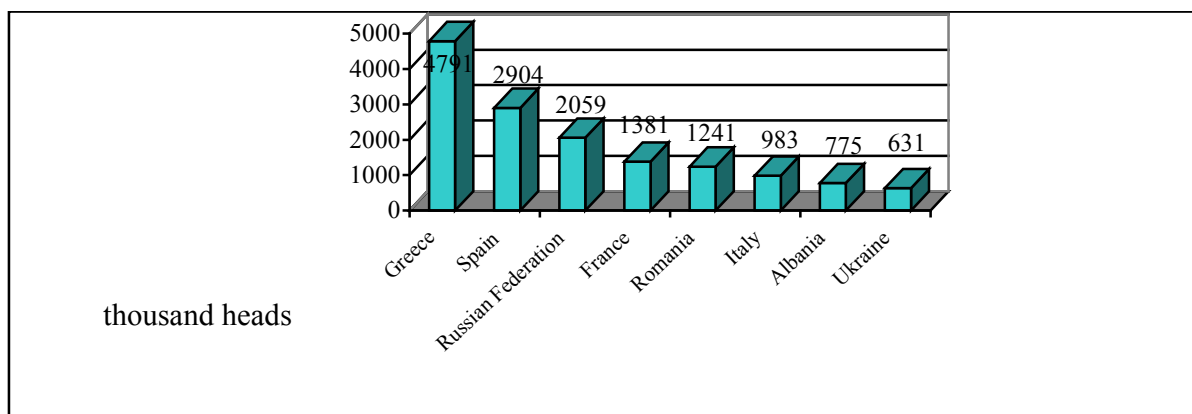
Table 2. Countries with the largest goat population in 2011

Specification	China	Pakistan	Nigeria	Bangladesh	Iran	Ethiopia	Indonezia	Mali
Number (thousand heads)	142230	61480	57300	50500	23500	22787	17483	17349
% of the total	18,9	8,2	7,6	6,7	3,1	3,0	2,3	2,3

Source: FAOSTAT

According to FAO, in Europe, in 2011, the largest goat populations were in Greece (4.791 million head), followed by Spain (2.904 million head), Russian Federation (2.059 million head) and France (1.381 million heads), as shown in Graphic 2:

Graphic 2. European countries top regarding the goat population in 2011



Source: FAOSTAT

According to the same statistical sources, worldwide production of goat's milk was situated, in the period studied, on an ascending curve, except in 2011 when there was a decrease. Thus, if in 2000 the production of goat milk globally was 12.78 million tons, in 2011 it reached an amount of 15.86 million tons, registering a growth rate of over 24%. (Table 3.)

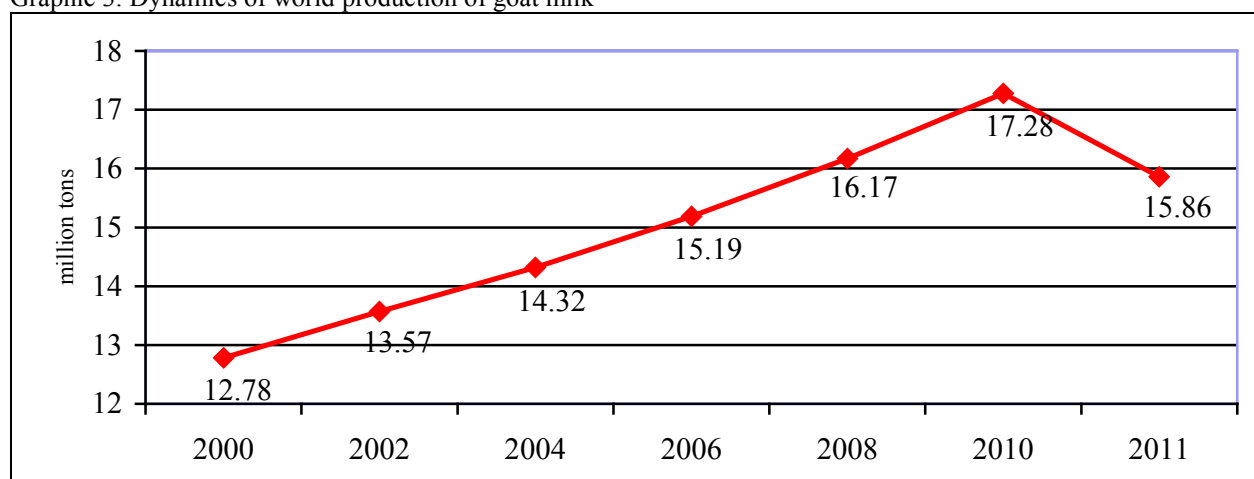
Table 3. The evolution of goat milk world production, by continents (thousand tons)

Continent	2000	2002	2004	2006	2008	2010	2011	2011 compared to 2000 %
Africa	2735	2850	3316	3586	3692	4070	2579	-5,70
America	505	524	541	552	566	589	590	+16,83
Asia	6949	7514	7794	8369	9275	9905	10021	+44,21
Europa	2588	2683	2665	2678	2641	2715	2665	+2,98
Oceania	0,028	0,037	0,042	0,043	0,042	0,042	0,042	+50,0
<b>TOTAL</b>	<b>12777</b>	<b>13571</b>	<b>14316</b>	<b>15185</b>	<b>16174</b>	<b>17279</b>	<b>15855</b>	<b>+24,09</b>

Source: FAOSTAT

This evolution is shown in the Graphic 3.

Graphic 3. Dynamics of world production of goat milk



Source: FAOSTAT

Analyzing the Table 3, it is found that Asia occupies constantly the first place in the world production of goat milk, accounting in 2011, 63.20% of the total, followed by Europe with 16.81% and Africa with 16.27%. Among continents, the highest growth rates in the analyzed interval belong

to Oceania (+50%) and Asia (+44.21%), as opposed to Africa, where the goat milk production decreased by 5.7% in 2011, compared to 2000.

Ranking at country level, the first major goat milk producer, throughout the period under study, is India, which, according to FAO statistics, recorded in 2011, a production of 4.594 million tons, ie 28.98% of the world production. This is followed by Bangladesh, with 2.496 million tons (15.74% of total). (Table 4.)

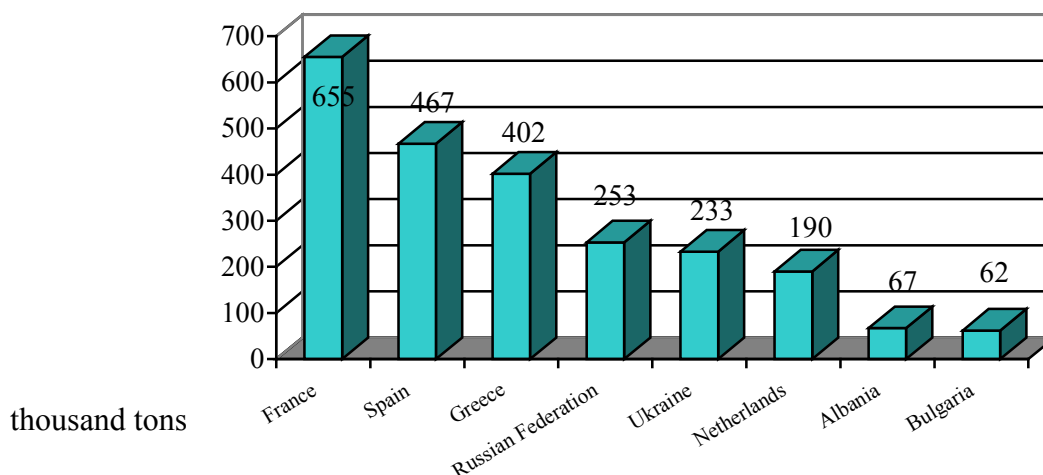
Table 4. Countries with the largest goat milk production in 2011

Specification	India	Bangladesh	Pakistan	Mali	France	Spain	Somalia	Greece
Goat milk production (thousand tons)	4594	2496	759	703	657	540	501	402
% of the world production	28,98	15,74	4,79	4,43	4,14	3,41	3,19	2,54

Source: FAOSTAT

According to the same source of statistical data, among European countries producing goat milk is, in 2011, France, with over 655 000 tons, followed by Spain, with 467 thousand tons and Greece, with more than 402 000 tons. (Graphic 4.)

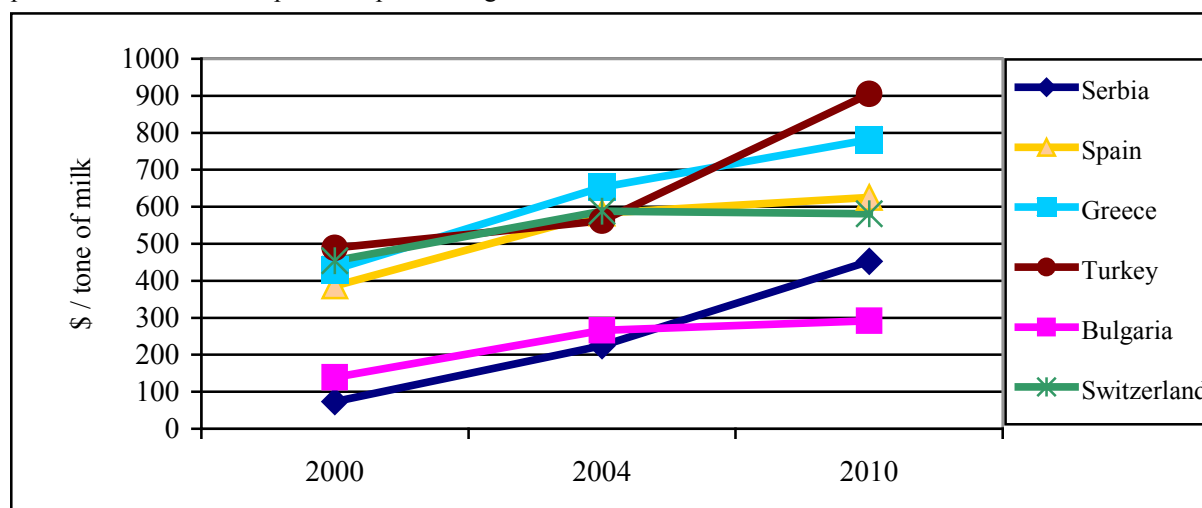
Graphic 4. The top of the first eight European countries regarding goat milk production in 2011



Source: FAOSTAT

Goat farms in Europe deliver milk and cheese from goat's milk to European markets and North America [8]. Regarding the producer price of goat milk, according to FAO statistics, worldwide there is a great variety: for example, in 2000, the lowest price was registered in Serbia, only 73.3 \$ / tone of milk and the maximum - in Singapore (3773.5 \$ / tone of milk). Note that this country was also maintained in 2010 world ranking, with the price of 6433.8 \$ / tone of milk. Price evolution illustrated in Graphic 5, shows substantial increases in the years 2000 to 2010, reaching even 6 times more at the end of the study compared to the beginning of the interval (Serbia).

Graphic 5. The evolution of producer prices for goat milk



Source: FAOSTAT

In India - the largest global goat milk producer, the consumption takes place mainly at the local level, unlike France, which is the largest goat milk producer in Europe, where there is an important economic sector of goat growing and exploitation, in which more than 90 % of their milk is processed and marketed as cheese. Competitiveness and profitability of goat milk on the world market are closely linked with seasonal production, livestock and productivity.

Over two thirds of the goats are grown in tropical and subtropical areas of the world, but yields from these are much lower compared to that of goats in temperate regions. This is due to poor feeding conditions and exploitation of less productive breeds [6].

Regarding the evolution of world production of goat meat, this had a steady upward trend in the period 2000-2010, after that, in 2011 it was followed by a slight decrease (Table 5).

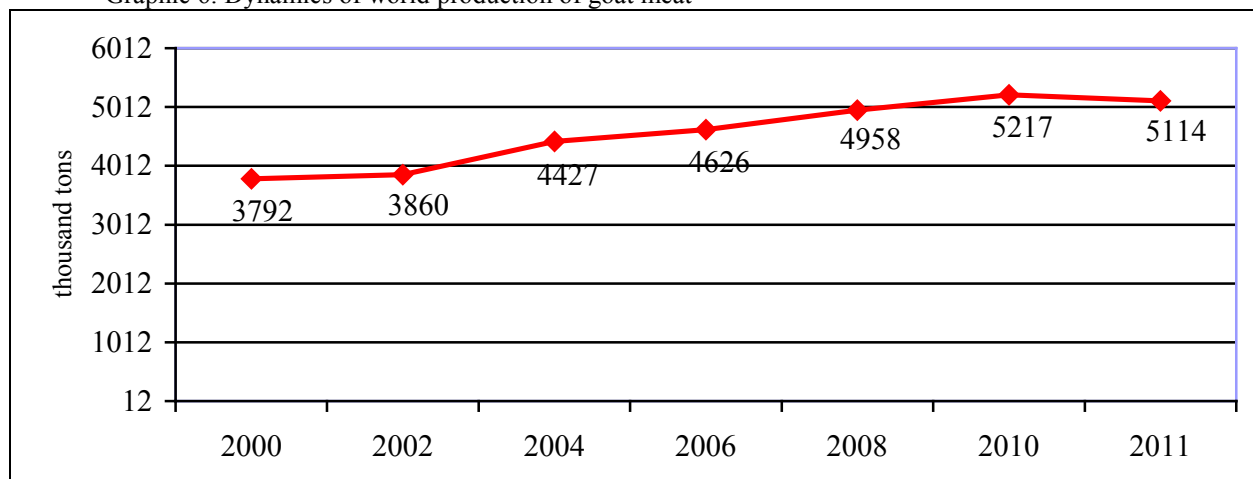
Table 5. Evolution of the world goat meat production, by continents (thousands tons)

Continent	2000	2002	2004	2006	2008	2010	2011	2011 compared to 2000 %
Africa	912	989	1034	1116	1202	1253	1133	+24,23
America	122	125	125	127	130	129	129	+5,70
Asia	2620	2607	3113	3233	3479	3676	3693	+40,95
Europa	125	122	136	126	127	133	132	+5,60
Oceania	13	17	19	24	20	26	27	+107,69
<b>TOTAL</b>	<b>3792</b>	<b>3860</b>	<b>4427</b>	<b>4626</b>	<b>4958</b>	<b>5217</b>	<b>5114</b>	<b>+34,86</b>

Source: FAOSTAT

At continental level, on the first place is Asia, which holds between 69-72% of the total world production of goat meat, followed by Africa, and Europe produces only 2.5 to 3.3% of the total. Oceania is the last in this regard, but has the largest increase in the period studied, with more than 107% , while Europe and America record the lowest growth rates, 5.6% and 5.7% . Worldwide, in 2011 was produced a quantity of goat meat by over a third more than in 2000 (34.86%). This trend is shown in Graphic 6.

Graphic 6. Dynamics of world production of goat meat



Source: FAOSTAT

World production of goat skins also recorded an upward trend, with growth of 31.41% in 2011 compared to 2000. On the first place is Asia, with over 75% of the total, Europe produces only between 2-2.5% of the world's skins. (Table 6)

Table 6. Evolution of the world goat skins production, by continents (thousand tons)

Continent	2000	2002	2004	2006	2008	2010	2011	2011 compared to 2000 %
Africa	166	181	190	210	223	234	193	+16,26
America	23	23	23	23	23	23	23	0,00
Asia	651	646	782	770	842	869	891	+36,87
Europa	22	23	25	23	22	23	23	+4,50
Oceania	4	5	6	7	6	8	8	+100,00
<b>TOTAL</b>	<b>866</b>	<b>878</b>	<b>1026</b>	<b>1033</b>	<b>1116</b>	<b>1157</b>	<b>1138</b>	<b>+31,41</b>

Source: FAOSTAT

Of the 570 breeds of goats worldwide, only 69 are uniquely specialized to the production of milk. In those 69 breeds, 36 (approximately 52%) are from Europe, 25 breeds (37%) in Asia and 8 breeds (11%) in Africa. Most breeds, however, have dual specialization, being exploited both for meat and for milk production at a medium to low level [2]. Tafta V. (2002) shows that, taking into account the biological and productive valuable particularities; goats are receiving increasing attention in both developing and developed countries, where the predominant are improved and developed breeds. Regarding production of milk is considered that the group of Swiss, Spanish, French and English are the most valuable goats.

Unfortunately, stereotypes, mainly related to poor social conditions, led to the formation of a negative opinion on the need to grow goats. But due to health problems, such as those related to children's allergies to the proteins in cow's milk, goat milk interest grew and contributed to the growth of goat's development [5].

## CONCLUSIONS

The current situation regarding goat farming systems and global diversity are the result of evolution and their changes in the last 50 years, development of markets for products from goat's milk, on the one hand and consumer attitudes, on the other hand [3].

Goat farming systems are diverse, both intensive and semi-intensive and extensive, reflecting the ability of these animals to adapt to a wide range of environmental conditions. A simplified description of the different operating systems, based on eco-regional criteria, shows that

both loose housing - feeding with forage crops or on cultivated pastures and grazing meadows, or on areas that are not part of the agriculture circuit are practiced[1].

Research on goat farms show general trends in their production systems: increasing size of farms, while reducing their number, streamlining food behaviors and decrease pastoral practices in milk production, widening the numbers of major dairy breeds and increase number of projects for the conservation of local breeds.

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