

## ANALYSIS ON THE EVOLUTION OF ROMANIAN SHEEP AND GOAT SECTOR AFTER EU ACCESSION

Vasile DREVE<sup>1</sup>, Ion CĂLIN<sup>1</sup>, Bogdan BAZGĂ<sup>2</sup>

<sup>1</sup>University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd,  
District 1, Bucharest, Romania

<sup>2</sup>"Mihai Viteazul" National Intelligence Academy, Bucharest, 20 Odăi Street, District 1, Romania

Corresponding author e-mail: drevevasile@gmail.com

### Abstract

*The paper intends to identify the main trends of the Romanian sheep and goat sector, after the accession to the EU, based on the analysis of the specific indicators regarding sheep and goat livestock and the production at national and EU level, using the data provided by the Ministry of Agriculture and Rural Development, National Institute for Statistics and European Commission. Sheep and goats are mainly present in Central, North-Eastern and South-Western Romania. About 362 thousand farmers are sheep breeders and 127 thousands are goat breeders. The average farm size is about 28.5 heads for sheep and 10.8 heads for goats. The sheep livestock increased by 29% in the analyzed period accounting for 12.288 thousands heads in 2015 and the goat livestock increased by 45%, accounting for 1.839 thousand heads in 2015. Mutton and goat meat production increased from 134 thousand tonnes in 2007 to 182 thousand tonnes in 2015. Sheep and goat milk production increased from 469 thousands litres in 2007 to 701 thousands litres in 2015. As a conclusion, sheep and goat sectors registered a increase after the accession in terms of livestock and both for meat and milk production.*

**Key words:** evolution, sheep and goat, European Union, sector, milk.

### INTRODUCTION

Shepherding has represented, in time, one of Romanian folk's personality manifestations, maintaining the concept of stability and cohesion in the Danube-Carpathian space. Sheep and goat breeding represent a symbol of the Romanian folk's existence and its permanent and traditional bound with nature. These have ensured the fundamentals for a real domestic industry that is processing milk, wool and hide; with deep economic and social implications over the development of the material and spiritual life.

After the critical livestock decrease from the early 90s, the sheep sector is the only one that recorded an increase and from which Romania exported more than imported. In the period 2007-2015, an increase of the sheep and goats livestock can be observed, especially as regards the total livestock, where a consistent growth can be observed.

One of the reasons of this revival could be represented by the modest conditions, in terms of housing, feed and care, necessary for sheep and goats compared with other species. Both species use feed resources that cannot be

put in value at an optimal level by other species, and their growth requires small energy consumption. Thus, investments in sheep and goat breeding are more profitable (Taftă, 2008).

Meat and milk obtained from the two species are nutritious product with high biological value. Sheep meat is tasty, with a high content of calcium and phosphorus but low in iron, when it's compared with beef and pork. Sheep and goat meat have the highest digestibility from all domestic ruminant species (Manole, 2008).

According to recent studies, sheep milk has a higher content of vitamins and minerals than cow's milk that are essential for growth (Ashworth, 2000).

The calcium content in the milk of sheep is between 162-259 mg/100g compared with the 110 mg/100g in cow's milk, and phosphorus, sodium, magnesium, zinc and iron content is also higher. Recent studies have shown that goat milk has many health benefits like the reduction of cholesterol deposits, but is biologically impossible to obtain milk cholesterol. Although cheese products obtained

from sheep and goat milk (i.e. Roquefort, Pecorino Romano or Feta) are consumed frequently, not the same can be said about sheep and goat milk (Ward et al., 1995).

## MATERIALS AND METHODS

The study of the sheep and goat sector was made between 2007 and 2014 and intends to identify the main trends of the Romanian sheep and goat sector, after the accession to the EU.

To achieve these goals we analysed specific indicators regarding sheep and goat livestock and the production at national and EU level, using the data provided by the Ministry of Agriculture and Rural Development, National Institute for Statistics and European Commission.

## RESULTS AND DISCUSSIONS

The results of the study shows that at EU level, sheep and goat farming in 2007 -2014 period was a minor agricultural activity (3.6% of the total value of livestock production) but occupies a significant portion of agricultural land in some MS (UK, Ireland, Spain, Greece, Romania and Italy) (Figure 1).

Sheep and goat breeding, at EU level, represents a small agricultural activity (3.6% from the total value of the livestock production), but in some MS (i.e. UK, Ireland, Spain, Greece, Romania and Italy) it's occupying a significant percent of the agricultural land.

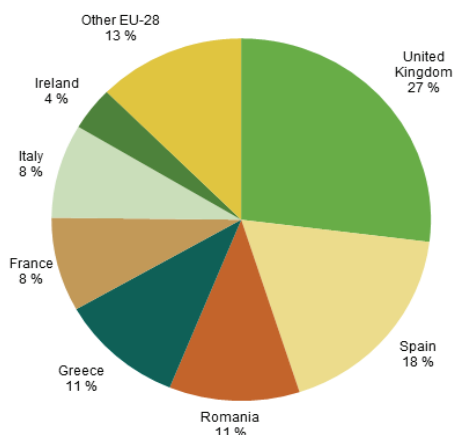


Figure 1. Distribution of sheep in the EU-28

As regards the structure of the agricultural holdings, according to the statistical data (Meat production statistics, 2015), only 7.7% from the EU farms are dealing with sheep livestock and almost half of them are farms with over 500 heads. Goat farms represent only 4.4% from the total EU farms and only 51.1% from the total goat livestock is to be found in herds with more than 200 heads. These average values conceal somehow contrasts between small flocks, which are located in small rural farms and large flocks, which are found mainly in regions with natural or environmental constraints.

Farm structures in the EU have changed little, except for France (increase of holdings), Romania (reduction of holdings number and increase of their size, as a result of EU accession) and Ireland, where an extensification of production can be observed.

As regards flock size at EU level, these are varying considerably between Member States, ranging from large flocks (23.4 million heads in the United Kingdom) to very small ones (12 thousand heads in Luxembourg).

The 14 EU Member States reporting on sheep population can be distinguished depending on the share of dairy ewes in the ewe flock (Table 1).

Table 1. Sheep livestock at the EU level - 2013

	Number of ewes (1000 heads)			% Goat milk
	Total	Milk	Meat	
Northern Group of Countries	15.679	35.0	15.373	0.2
Germany	1,126.5	11.0	1,115.5	1.0
Ireland	2,430.2	0.0	2,430.2	0.0
Hungary	855.0	18.0	838.0	2.1
Holland	600.0	6.0	594.0	1.0
Sweden	271.5	0.0	0.0	0.0
Great Britain	10,396.0	0.0	10,396.0	0.0
Southern Group of Countries	41,084.7	24,525.0	16,559.7	59.7
Bulgaria	1,157.9	1,078.0	80.0	93.1
Spain	6,697.0	6,400.0	297.0	95.6
Greece	11,281.2	2,463.3	8,818.0	21.8
France	5,479.0	1,575.0	3,904.0	28.7
Croatia	498	143.0	355.0	28.7
Italy	6,203	5,142.0	1,051.1	82.9
Portugal	1,607.4	331.2	1,276.1	20.6
Romania	8,161.0	7392.5	765.5	90.6

The ‘northern’ EU countries have no or limited dairy production whereas dairy ewe sheep farming is significant in the ‘southern’ countries.

The farming systems for sheep and goats in the ‘southern’ EU countries have similar levels of complexity in terms of their organisation as those for bovine animals in the EU generally, with both dairy and fattening flocks co-existing. Individual dairy animals are more profitable than meat animals and therefore they are more likely to be supported by technology than meat animals (feeding, genetic progress, farm equipment, farmer education, etc.).

The volume of milk fluctuates between MS and production regions, according to the commercial relations with cheese and the feed price. Milk processing on farms is more frequent, as daily milk volumes are lower than from cows’ milk, i.e. milk collection by a dairy is suitable only where dairy farm density within the territory is sufficient (Znaidi, 2001).

Sheep and goat meat represents only 1.4% of total EU agricultural production. Milk obtained from sheep, goats and buffaloes represent 3.2% of total milk production (approx. 158 million tonnes). The profitability of holdings for sheep meat production has decreased in almost all Member States except Ireland.

Between 2007 and 2014 the sheep flocks from the 14 Member States that are reporting to Eurostat, decreased by approx. 11.4 million animals.

The drop reflects the significant fall observed in the main sheep meat producing countries. Spain lost 31% of its flock (7.1 million sheep), Portugal 30%, Ireland 22%, Germany 21% and France 18%.

The Netherlands and Croatia, with a smaller share of the total number of sheep, also decreased their flock (– 38% and – 24% respectively). The United Kingdom, which is by far the most important sheep meat producer (28% of EU-28 production), lost 3 % of its flock. In contrast, the sheep flock grew in three countries: Romania (+ 25 %) and Greece (+ 4%), where more than 90% of ewes are dairy ewes and in Sweden (+ 23%).

Goat livestock, which is mainly exploited for milk, experienced a fluctuating trend, decreasing in Greece and Spain and increasing in France. The total contribution of goat meat production in the EU-28 is modest (0.1%) and concentrated in seven Member States, representing 95.6% of the EU goat meat production. Meat can be perceived as a by-product of milk production. (Massot-Marti, 2008).

Sheep and goat breeding can be especially developed in areas with limited agricultural potential (rough grazing), but only at a low level of return per head (Pollott et Wilson, 2009). Lands with poor pasture can also be used as part of the overall business strategy, when is the case of a diversified farms. The diversity of landscapes and climatic conditions within some EU Member States often helps explain regional specialisations as regards farming (Tafă, 2006).

Sheep and goat breeding represents in Romania a traditional activity. The sheep and goat flock size is placing Romania on 4th in the European Union, after the UK, Spain and Greece, with a flock of 14.1 million heads (Table 2).

Table 2. Evolution of the main indicators between 2007-2015

Indicators	2007	2009	2011	2013	2015
<b>Total livestock (thou. heads.)</b>	<b>9.878</b>	<b>10.755</b>	<b>11.331</b>	<b>12.809</b>	<b>14.127</b>
Sheep (thou. heads)	8.771	9.641	10.003	11.203	12.287
Goats (thou. heads)	1.015	1.133	1.327	1.605	1.839
<b>Meat production (thou. tonnes)</b>	<b>134</b>	<b>141</b>	<b>150</b>	<b>170</b>	<b>182</b>
Sheep	122	127	135	152	162
Goats	12	14	15	18	20
<b>Milk production (thou. hl)</b>	<b>4.691</b>	<b>5.099</b>	<b>5.263</b>	<b>5.608</b>	<b>7.013</b>
Sheep	3.338	3.607	3.795	4.024	5.037
Goats	1.353	1.492	1.467	1.583	1.976

The sheep and goat flock increase, as well as meat production increase that can be observed in recent years was a result of the subsidies policy granted by authorities:

- towards the improvement of sheep and goat population exploited for meat production;

- towards farms with flocks of minimum 50 sheep and 25 goats.

In Romania, the aid allowed an improvement of genetics and technology, which was accompanied by an increased production (ANT International, 2011).

As regards the ratio between the two species (sheep/goats), this has undergone slight modifications from 8.64/1 in 2007 to 6.68/1 in 2015 in the favour of the goat sector, but the potential of these two species is still not used entirely.

In 2014, the total number of sheep and goat farms was 480 thousand, of which 73.95% were sheep farms and 26.05% goat farms. Sheep livestock decreased in farms with less than 10 heads (from 28.83% in 2007 to 15.47% in 2014). The same phenomenon can be observed in farms with a livestock between 11- 100 heads, which also fell from 36.86% in 2007 to 28.02% in 2014.

In the same period the flocks have concentrated in farms between 101-500 heads (from 26.51% in 2007 to 40.28% in 2014) and in farms with more than 500 heads (from 7.80% in 2007 to 16.23% in 2014) (Romanian Statistical Yearbook, 2014). This shows an increase in the number of medium and large size farms at the expense of small farms, as well as a specialization for the type of production (i.e. meat or milk).

The production of sheep and goat meat increased by 27% in analysed period (from 134 thousand tonnes in 2007 to 182 thousand tonnes in 2015). When we analyse separately each species an increase in production by 25% for sheep meat can be observed (162 thou. tonnes in 2015) and by 40% for goat meat (20 thousand tonnes in 2015).

Total milk production increased by 33% from 4691 thousand hl 2007 to 7013 thousand in 2015. Milk production in sheep represents 73% of total production in 2015.

In 2014, the average sheep farm size, nationwide, was 28.57 heads/farm compared to 11.96 heads/farm in 2007 and the average goat farms size was 10.74 goat heads/farm compared to 4.33 heads/farm in 2007. However, the average size of holdings is still

small for the implementation of intensive growth technology (Table 3).

Table 3. Structure of sheep and goat farms in 2014

HOLDINGS	NUMBER OF EWES					
	ANIMALS (THOU. HEADS)		% OUT OF TOTAL		HEADS PER HOLDING	
	2007	2014	2007	2014	2007	2014
<b>TOTAL</b>	<b>6375</b>	<b>10150</b>	<b>100.00</b>	<b>100.00</b>	<b>11.96</b>	<b>28.57</b>
< 10 HEADS	1838	1569	28.83	15.47	4.32	6.28
11 - 20 HEADS	847	640	13.29	6.31	14.13	15.48
21 - 50 HEADS	671	780	10.53	7.68	28.83	32.62
51 - 100 HEADS	831	1424	13.04	14.03	64.79	72.24
101 - 200 HEADS	797	1639	12.50	16.15	109.51	148.78
201 - 500 HEADS	893	2449	14.01	24.13	283.54	338.09
> 500 HEADS	497	1648	7.80	16.23	661.36	814.15
HOLDINGS	NUMBER OF GOATS					
	ANIMALS (THOU. HEADS)		% OUT OF TOTAL		HEADS PER HOLDING	
	2007	2014	2007	2014	2007	2014
<b>TOTAL</b>	<b>630</b>	<b>1397</b>	<b>100</b>	<b>100.00</b>	<b>4.33</b>	<b>10.74</b>
< 10 HEADS	331	553	52.55	39.58	2.44	4.91
11 - 50 HEADS	167	411	29.43	29.43	20.17	32.13
> 50 HEADS	132	433	30.99	30.99	74.63	94.15

As regards trade balance, the sheep meat sector recorded a positive trend, in recent years, by ensuring the necessary domestic consumption and creating export facilities.

As shown in Figure 2, meat trade balance is positive for sheep and goats, where the imports represent only 2.48% of the meat exported.

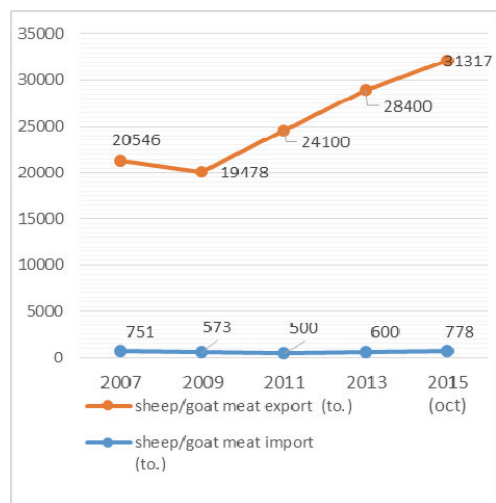


Figure 2. Evolution of sheep/goat meat exports and imports 2007-2015

Romania is the largest exporter of sheep and goat meat to third markets from the EU. In 2014 according to European Commission

statistics, Romania exported 22 thousand tonnes of mutton carcass on third markets. This quantity represents 62% of EU mutton carcass exports to third countries, purchased in 2014. The main export destinations for sheep and goat meat are the Arab countries. (Meat production statistics, 2015).

Consumption of sheep and goat meat lies at national level on the 4<sup>th</sup> place after beef, pork and poultry, accounting for approximately 10% of total meat consumption in Romania. Average sheep meat consumption is around 2.1 kg/capita compared to 2.9 kg/capita in the EU. Domestic consumption of mutton has increased slightly from an average of 1.4 kg/capita in 2007 to 2.1 kg/capita in 2015.

## CONCLUSIONS

Sheep and goats livestock, as well as milk and meat production increased in the analysed period, thus Romania is ranked on the fourth place as regards livestock and production in the EU.

Sheep and goat meat consumption is increasing and, at the same time, the interest of other EU countries for organic products obtained from sheep and goat meat has increased.

Romania has a huge potential to produce mutton and goat meat especially for Arab countries, but also for the EU market, where there is a shortage of supply.

Sheep and goat meat production can grow by increasing the livestock and especially by improving the quality of the genetic material used for meat breeds and hybrids. This will lead to effective utilisations of pastures and meadows.

Particular attention should be paid to the size of fattening farms, as well as carcass classification, according to EU standards. In this way, the Arab and the EU market will be regained, and the meat trade will further improve the trade balance. Large export of live rams should be transformed in export of meat carcass.

Structure of holdings should be directed to fatten young animals and farm efficiency should be improved by moving from self-consumption to commercial production.

## REFERENCES

- ANT International, 2011. Evaluation of CAP measures in goats and sheep sector, 1-12.
- Ashworth S., 2000. An evaluation of the common organisation of the markets in the sheep and goat meat sector, Industry Strategy Consulting, 79-89.
- Manole V., 2008. Production chains for sheep products in Romania, Agronomic Economy Publishing House, 3-10.
- Massot-Marti A., 2008. The future of the sheep and goat sector in Europe, European Parliament, 35-60, ([www.europarl.europa.eu](http://www.europarl.europa.eu)).
- Meat production statistics, Eurostat, 2015. ([www.ec.europa.eu/eurostat/statistics-explained](http://www.ec.europa.eu/eurostat/statistics-explained)),
- Pollott G., Wilson T., 2009. Sheep and goats for diverse products and profits, FAO, 8-12.
- Romanian Statistical Yearbook, 2014 ([www.insse.ro](http://www.insse.ro))
- Taftă V., 2008. Sheep and goats breeding. Ceres Publishing House, Bucharest, 20-24.
- Taftă V., 2006. Breeding technology for lambs and kids. Ceres Publishing House, Bucharest. 15-17
- Ward C.E., Trent A., Hildebrand J.L., 1995. Consumer perceptions of lamb compared with other meats, Sheep and Goat, Res. J., 64-70.
- Znaidi I.E.A., 2001. Sheep and Goat organic meat production in the Mediterranean Region. In: Mediterranean Organic Agriculture, Mediterranean Agronomic Institute of Bari, 12-16 ([www.orgprints.org](http://www.orgprints.org)).