

Economics and profitability of sheep and goat production under new support regimes and market conditions in Central and Eastern Europe

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During last several years the region of Central and Eastern Europe has got many changes caused by the realization of transformation processes in sheep and goat production. Since the end of World War II, the sheep production has been focused on the wool production, that it was following from the anti-importing wool production strategy. To maintain the profitability of wool production, the several supporting mechanisms were developed. In the final effect in 1980s, the proportion of the profit from wool and live lamb production was like 1:1.5 (Radzik-Rant et al. 1999).

In case of goats, their breeding importance were significantly higher in the Balkan countries region, despite of the less government interesting. Even similarly to Poland, the government interesting on goat production was totally gave up.

The beginning of political regime changes influenced on the way of economy management and caused the change of the breeding programs according to the loss of wool importance in the region of Central and Eastern Europe. It forced the reduction of sheep production profitability and caused the change of the sheep and goat breed structure (Kukovics and Javor 2001). Paradoxically, the significant movement was observed in the goat sector as a change in number of animals.

Nowadays, the next transformation period in the sheep and goat sector should be expected in these countries, because of their accession to EU in 2004. The profitability is based on a live-lamb and milk production, because of low importance of wool production. The animal productivity was lower because of low reproduction indicators and relatively low range of the use of small ruminants in landscape management and wasteland pasturage. According to the mentioned topics, the number of goats and sheep as well as production level in separate countries of region were shown below. Tendencies were discussed basing on information from 1990, 1995, 2000 and 2003 years.

Situation in sheep and goat sector in Central and Eastern Europe

The number of sheep in Central and Eastern Europe is shown in table 1. Tendencies of changes in the number of sheep in different regions of this part of Europe were quite varied. Rather stable number of animals was observed in Albania. Dramatic decrease in number of sheep were observed in Bulgaria, Macedonia, Serbia and Montenegro, Lithuania, Poland, Romania and Slovakia. Decrease and inhibition of the decreasing tendencies were join up with increase of number of sheep after 2003 in Czech Republic, Estonia, Hungary, Latvia and Malta. The permanent increase of the sheep population was observed only in Bosnia and Herzegovina, Croatia and Slovenia. As there was shown before, the excellent conditions for sheep breeding were created in Bosnia and Herzegovina, Croatia and Slovenia. Other countries of this region still have not stable situation in sheep sector, despite of Czech Republic, Estonia, Hungary, Latvia and Malta. Due to Kukovics and Javora (2001), difficulties in stabilizing the sheep population in these other countries can be caused by changes in economic situation and yet unfinished adaptation processes of the sheep breed structure. Despite of different tendencies, the highest number of sheep is observed in Romania as well as in Albania, Bulgaria, Hungary and Macedonia with old Yugoslavia.

Table 1. Number of sheep in the countries of Central and Eastern Europe (000 heads) (FAO 2004)

Country	Year			
	1990	1995	2000	2003
Albania	1.646,3	2.480	1.939	1.800
Bosnia and Herzegovina		520	661,6	670
Bulgaria	8.130,3	3.397,6	2.548,9	1.728,4
Croatia		452,9	528,7	586,6
Czech Republic		165,3	84,1	103,1
Czechoslovakia	1.053,3			
Estonia		61,5	28,2	29,9
Hungary	2.069,2	947	934	1.103
Latvia		86,4	27	31,5
Lithuania		40	13,8	13,6
Macedonia, The Fmr. Yug. Rep.		2.466,1	1.289	1.200
Poland	4.158,5	713,2	361,6	337,8
Romania	15.434,8	10.896,6	8.121	7.446,9
Slovakia		397,1	337,1	325,5
Slovenia		39,1	72,5	107,4

Tendencies of changes in the number of goats in Central and Eastern Europe are presented in table 2. Decreasing tendencies were visible in Czech Republic, increase and then further decrease of the goat population were observed in: Albania, Bulgaria, Hungary, Lithuania and Slovakia. The initial decrease and later increase of the goat population was observed in Croatia and Romania. Relatively stable level of goat population could be observed in Poland, whereas the permanent increase was observed in Estonia, Latvia and Slovenia. The biggest goat population was disposed in Albania, Bulgaria and Romania. The significant population of goats was presented in Croatia, Hungary and Poland.

In general, there was not observed such dramatic decreases in goat population like in sheep population in the Central and Eastern European countries.

In these countries, where the number of goats, in spite of its fluctuations, was increasing, there were also slightly fluctuations of sheep population. In many countries, e.g. Bulgaria and Poland, where the sheep population rapidly decreased, the goat population was spontaneously evolving. The Polish goat breeding has been developed since 1990, because of searching new animal production course and new consumer products for the market. Also the access to the EU's market stimulates directions of the sheep and goat production development. In this view some primary sheep and goat products are described wider.

Table 2. Number of goats in the countries of Central and Eastern Europe (000 heads) (FAO 2004)

Country	Year			
	1990	1995	2000	2003
Albania	1.144	1.650	1.106	1.025
Bulgaria	432,9	795,4	1.046,3	900
Croatia		107,3	79,4	86,1
Czech Republic		45	32	12,8
Czechoslovakia	50,4			
Estonia			2,7	3,9
Hungary	15,6	52,3	189	140
Latvia		7,4	8,1	13,2
Lithuania		12,4	24,7	22
Poland		177*	172**	
Romania	1.017,2	745,1	558	678
Slovakia		25,1	50,9	39,2
Slovenia		10,7	14,6	22

* 1996, ** 2001

Milk Production

The leading milk producers are given in table 3. Definitely highest sheep milk production is observed in Romania as well as in Hungary, Macedonia and Serbia and Montenegro. In general, there is a decreasing tendency in production of a consumer milk in all countries, that can be mainly linked with decrease of native sheep population or not milked on the productive scale. This trend is strongly connected to tradition and regional conditions which carrying influences on the production level and processing range.

Table 3. Sheep milk production in the countries of Central and Eastern Europe (000 tonnes) (FAO 2004)

Country	Years			
	1990	1995	2000	2003
Albania	44	82	-	-
Bulgaria	272	124	-	-
Croatia		4	9	8
Czech Republic		2	1	1
Czechoslovakia	37			
Hungary	49	27	33	30
Macedonia, The Fmr. Yug. Rep.		71	40	45
Poland	7	2	1	1
Romania	405	394	322	272
Slovakia	-	11	11	11

- data inaccessible

On the contrary to sheep usage, the milk production is the leading process in goat sector. In many Central European countries, this type of use has been developed since 1990. Generally, the production level and gain range of goat milk was developed in all countries, excluding Czech Republic and Latvia. This branch of production is quite new for the Central European countries. Goat milk is an attractive product for national markets and is willingly selling on the EU's markets. Therefore, the goat milk production might have a high possibility of developing.

Table 4. Goat milk production in the countries of Central and Eastern Europe (000 tonnes) (FAO 2004)

Country	Years			
	1990	1995	2000	2003
Albania	52	95	-	-
Bulgaria	64	147	-	-
Czech Republic		16	15	10
Czechoslovakia	19			
Estonia			1	1
Croatia		12	11	-
Hungary	3	10	11	10
Lithuania		9	12	11
Latvia		4	2	2
Poland	21	22	40	38
Slovenia	-	-	3	-
Slovakia	-	8	13	13

- data inaccessible

Meat production

This type of activity is widespread in most of Central and Eastern European countries and practically determine the profitability of sheep breeding. It is caused by a possibility of live- and slaughtered lamb sale on EU's markets. Because of the low meaning of direct sale, the obtained prices for slaughtered lambs are not very attractive for producers. The improvement should be expected after the EU accession of some countries from this region.

Almost every country shows significant amount of produced sheep meat, intended for export and self-supplying, indicating that all countries use sheep for meat production particularly. The production level and changing trends are strongly connected with sheep population. Developing into sheep meat production after 2000, Romania is definitely the biggest producer of sheep meat, being the predominate country in the whole region.

Table 5. Production of lamb meat in the countries of Central and Eastern Europe (000 tonnes) (FAO 2004)

Country	Year			
	1990	1995	2000	2003
Croatia		1,6	2	1,5
Czech Republic		3,8	0,8	1,2
Czechoslovakia	9,5			
Estonia		0,8	0,3	0,3
Hungary	5,4	1,9	3,6	2,6
Latvia		1,1	0,4	0,4
Lithuania		1,6	0,9	1
Macedonia, The Fmr. Yug Rep		10	4,5	4,5
Poland	28,7	5,6	1,3	1,1
Romania	101,5	69,2	49,2	62,1
Slovakia		2,2	1,6	1,9
Slovenia		0,1	0,9	0,9

Goat meat production has more significant importance in few countries of the region. The biggest amount of goat meat is produced in Romania, because of the high number of goats. A little amount of goat meat is produced in Croatia, Czech Republic and Slovakia, so these countries cannot be recognized as the leaders in Central and Eastern Europe.

Table 6. Production of goat meat in the countries of Central and Eastern Europe (000 tonnes) (FAO 2004)

Country	Year			
	1990	1995	2000	2003
Croatia		0,3	0,2	0,2
Czech Republic		0,2	0,3	0,3
Czechoslovakia	0,4			
Romania	7	6	4	5,4
Slovakia		-	0,2	0,3

- production below 0,1 tonnes

Skin and wool

Both wool and skin plays relatively small role in sheep production. The basic information about wool and skin production in sheep is given in table 7. The primary producer of sheep skin is Hungary and the second producer is Romania. This situation might be caused by the fact of live-lamb export in the most of the countries, because the native skin might come from home slaughtering for self-consumption. On the contrary, Hungary developed the lamb carcass export and skins are processed in the country, reaching the significant value of trade weight, even bigger than in Romania, where the sheep population is significantly bigger than the Hungarian.

Table 7. Production of sheep skin in the countries of Central and Eastern Europe (000 tonnes) (FAO 2004)

Country	Year			
	1990	1995	2000	2003
Croatia		0,5	0,6	0,5
Czech Republic		-	-	-
Czechoslovakia	0,8			
Estonia		0,1	-	-
Hungary	-	0,5	0,4	0,3
Latvia		35	13	14,4
Lithuania		0,2	0,1	0,1
Macedonia, The Fmr Yug Rep	2	0,9	1,1	
Poland	7	1,3	0,4	0,3
Romania	21,5	23	13,4	10,4
Slovakia		0,3	0,2	0,2
Slovenia		-	0,2	0,2

- production below 0,1 tonnes

The goat skin sector is even low important. Table 8 shows information about this type of goat production. Among the goat skin producers, only Romania produces them on statistically demonstrating level. Goat skin production is not very important and skins are treated as the by-products.

Table 8. Production of goat skin in the countries of Central and Eastern Europe (000 tonnes) (FAO 2004)

Country	Year			
	1990	1995	2000	2003
Croatia		-	-	-
Czech Republic		-	-	-
Czechoslovakia	-			
Romania	1,5	1,2	0,7	0,7
Slovakia		-	-	-

- production below 0,1 tonnes

Wool production in Central and Eastern Europe lost totally its importance comparing situation to the period before 1990. FAO databases indicate the wool production only in Croatia and Romania (tab. 9). Wool is generally processing as regional products by craftsmen and for that reason wool is used in the self-supply in most of the countries. This part of sheep production seems to loss its importance for many years.

Table 9. Production of sheep wool in the countries of Central and Eastern Europe (000 tonnes) (FAO 2004)

Country	Year			
	1990	1995	2000	2003
Croatia		0,2	0,2	0,1
Romania	6,4	6,9	4,0	3,1

Production systems

Due to sheep there are three types of production systems:

- Moderately extensive
- Intensive on grasslands
- Intensive on arable areas

Goats are presented under:

- Intensive production system combined with all year indoor keeping and milk production

Each of these production systems has its own characteristic and place of use.

The moderately extensive system is used on mountain areas, characterized with high level of annual falls and necessity of using buildings during winter. The natural grasslands gives the basic fodder in this system. The number of sheep on flocks balances from 500 to 3000 heads with stocking rate 1-4 heads per hectare. Ewes give one lamb per year in the springtime, at the prolificacy of 110-130%. In mountain conditions there are used three types of sheep breeds: wool-milk, milk and wool-meat type.

The intensive production system on grasslands provides the fodder from cultural pastures. Buildings during winter are also necessary. The grassland productivity is much more higher and farms are located on flat lands, mainly on lowlands, rich with water access (falls and ground). Under these conditions the grazing paddocks are dominant and 1500-3000 sheep are kept in one paddock. The stocking rate is 6-20 heads per hectare, depending in the soil richness. Lambing period is organized in the springtime at the prolificacy over 150%. In such conditions there are used three types of sheep breeds: wool-meat, meat and milk type.

The intensive system on arable areas appears only in Europe. In this system fodder is produced on the arable area and sheep use huge amount of crop residues. Flocks are rather small, counting 100-1000 sheep, and the stocking rate is 5 heads per hectare. More than one mating season is used, so the lambing periods are varied. Prolificacy indicator should be over 150%. Sheep should be kept indoor all year practically. In these conditions there are used three types of sheep breeds: wool-meat, meat and wool-milk type.

Goats are kept under intensive system combining indoor keeping in all year connected with milk production. Farmers prefer keeping goats in small groups or even individually. Goats in dry period are often kept with sheep on pastures. This type of production systems has caused the significant development of goat breeding after 1990 and allowed to concentrate milk production, combined with processing basis.

Organizations supporting sheep and goat production

Ministries responsible for the agricultural activities coordinate and supervise activities in sheep and goat breeding. Subsidies and supporting breeding activities are decided on this level. Ministries influence indirectly on the field work by Research Institutes, National Agricultural Consulting Centres and Breeder's Associations. Breeder's Associations influence directly on the field work and generally they keep the flock-books. Also Breeder's Associations and in some countries the Agriculture Chambers dispose the capital supporting breeding work in breeding notes and production recording. The production tests are realized in appropriate testing stations cooperating with Breeder's Associations. Appropriate personnel supporting production is educated at universities, colleges, vocational schools or specializing courses organized by National Agricultural Consulting Centres or Consulting Companies. There are realized training programs preparing consulting personnel and producers by the courses financed by EU in new EU members and candidates countries. These training courses were realized as a part of the EU programs - PHARE/TACIS and SAPARD.

Sheep and goat production is supported by funds depending on the specification of each country separately (table 10). There are also realized the breeding and production programs focused on the assumption studies, tending to develop the small ruminant breeding support and possible government financial help.

In order to help the sheep and goat farmers and reduce their production costs there are different subsidies offered by the states. Subsidies are different in each country. At present time any subsidies are unavailable in Romania, old Yugoslavia, Macedonia and Albania. However, in other countries the several types of support are offered to the farmers. There should be pointed out that

without any subsidies the profitability would be definitely much lower. The farmer registration is the main condition to get a subsidy in these countries. Without any application form the state would not support its farmers financially.

Table 10. Kinds of subsidies in various countries (Kukovics and Javor 2001)

Country	Kind of subsidy				
	Registered animals	Quality male	Performance test	Investments	Land use
Bulgaria	*		*		
Czech Republic	*	*	*	*	*
Estonia	*				
Hungary	*	*	*	*	*
Latvia	*				
Poland	*	*	*		*/1
Slovakia	*	*	*	*	*
Slovenia	*				*

1 – from 2005

Profitability of sheep and goat breeding in various countries

In general, the small ruminants production has a low profitability in all of these countries. Wool is not a profitable sheep product and it is difficult to sell it at a responsible price. Profitability of lamb export is decreasing due to lower/stable prices with enhanced production costs. There were two exception: Slovenia, and probably Czech Republic (table 11). Many of the farms were and are not profitable when the owner (shepherd) salary and his health insurance as well as the costs of the invested money would be taken into account. That was the one of the most important factors affecting the size of national flocks. The low productivity of the animals was the second effect. The wool value, which lost almost 90% of its earlier importance, was the third effect. The forth effect is the lack of knowledge. Many new sheep and goat farmers are starting to work without any education on this field and many of them fail.

Table 11. Profitability of sheep and goat breeding in various countries

Country	Level of profitability
	Data from Kukovics and Javor (2001)
Bulgaria	L-M
Bosnia and Herzegovina	L
Czech Republic	G
Croatia	L-M
Estonia	L
Hungary	L-N
Latvia	.N.A
Macedonia	L-M
The Fmr Yug Rep	L-M
Poland	V-L
Romania	L-M
Slovakia	L-M
Slovenia	G/G

G-good, L – Low, M – medium, VL – very low, N - nil

The future of small ruminant production in this region is expected in:

- Native market development of sheep and goat products, especially on local markets.
- Further development of slaughtered lamb production by rising reproduction indicators.
- Development of milk production and processing as well as local use of wool and skins.
- Landscape management and wastelands' usage with small ruminants.
- Direct sale development allows to avoid a margin at business mediation. Accession of several countries from this region to EU creates the possibility of efficient realization of this point.

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