

SUSTAINABLE GOAT FARMING IN THE CENTRAL AND EAST EUROPEAN REGIONS: II. THE SOCIOLOGY ASPECTS

Kukovics Sándor¹, Horn Péter², Baranyai Gábor², Tóth Péter³, Jávör Bence⁴, Kume Kristaq⁵, Babayan Navine⁶, Avaliani Lasha⁷, Dimov Doytcho⁸, Mioč Boro⁹, Matlova Vera¹⁰, Sossidou, Evangelia N.¹¹, Ligda Christina¹¹, Zamfirescu Stela¹², Pihler Ivan¹³, Margetin Milan¹⁴, Dubravka Jarmila¹⁵, Kompan Drago¹⁶, Markovic Bozidarka¹⁷, Markovic Milan¹⁷, Dzabirski Vladimir¹⁸

¹Hungarian Sheep and Goat Dairying Public Utility Association,
Gesztenyés str. 1. Herceghalom 2053 Hungary

²Hungarian Sheep and Goat Breeders' Association, Lőportár u. 16. 1134 Budapest, Hungary

³Central Office of Statistics, Keleti Károly u. 5. 1024 Budapest, Hungary

⁴Due Gentili Ltd, Budaörs, Kapa utca 9658 hrsz; Hungary

⁵ALBAGENE Association, Tirana, Albania;

⁶ARID Goat Breeding Center, Yerevanyan highway 1,
Yeghegnadzor Vayots Dzor, Republic of Armenia

⁷National Food Agency, Ministry of Agriculture of Georgia

⁸Faculty of Agriculture, University of Plovdiv, Bulgaria

⁹Faculty of Agriculture Zagreb, Svetošimunska cesta 25, 10000 Zagreb, Croatia

¹⁰Institute of Animal Science, Přátelství 815, 104 00 Prague Uhřetěves, Czech Republic

¹¹Hellenic Agricultural organisation, DEMETER, Veterinary Research Institute, Thessaloniki, Greece

¹²Faculty of Natural and Agricultural Sciences, Ovidius University, 900527, Constanta, Romania

¹³Faculty of Agriculture, Novi Sad, Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia

¹⁴Slovak University of Agriculture, Nitra, Tr. Andreja Hinku 2., 949 76 Nitra, Slovakia

¹⁵Slovak Chamber of Agriculture and Food, Záhradnícka 21. SK-811 07 Bratislava, Slovakia

¹⁶Faculty of Agriculture, University of Ljubljana, Slovenia

¹⁷Biotechnical Faculty, University of Montenegro Podgoric

¹⁸University of Ss Cyril and Methodius in Skopje, Faculty of agricultural sciences and food-Skopje,
1000, Skopje, Republic of Macedonia

Abstract

The number of goats is only about eight-ten % of the sheep population in the region, while the number of goat farms is sometimes similar that of the sheep farms. In order to evaluate the possible sustainability of the goat farming and breeding in the region a survey was developed and circulated among the countries in the region (Albania, Serbia, Slovenia, Hungary, Czech Republic, Slovakia, Croatia, Romania, Bulgaria, Greece, as well as Montenegro, FYR Macedonia, Moldavia, Ukraine, Russian Federation, Belarus, Armenia, and Georgia).

The answers to the following questions were requested and processed in this part of the study: ration of hobby, part time and full time farms, level of production (milk and meat, reproduction), lands available for farmers, ratio and origin of rented lands, education of farmers, labour used on the farms, age of goat farmers, system of production used (traditional, semi-intensive, intensive), methods of milking, processing of milk (on farm and or by buying up companies), ration of on farm processing, annual quantity of milk processed on farms and in the professional dairies; number of processing dairies and the availability of them for goat farms.

The most important information could be summarised as follows: in most countries the traditional production system was used; the hand milking had significant role in many countries; most

farms were functioning on rented lands; the size of available land is limited, the level of education of goat farmers is rather low.

Key words: production systems, size of land used, ratio of land owned, education of farmers

INTRODUCTION

The goat farming and breeding as well as goat milk and meat production have many thousands of history in the central, Eastern and south-east regions of Europe. During the last two decades the whole economy of these countries were totally reorganized, and only limited information are available about the present situation of goat farming in these particular regions. The occasion of “European Regional Conference on Goats 2014” gave a good opportunity to collect the knowledge about the situation of goat farming from the countries of nearly twenty countries of central and East part of Europe.

MATERIAL AND METHODS

In order to collect the most wide information and data about the goat farming in the regions of central, eastern, and south-east European countries a survey was developed and circulated among the experts of the countries.

The answers to the following questions were requested and processed: ration of hobby, part time and full time farms, level of production (milk and meat, reproduction), lands available for farmers, ratio and origin of rented lands, education of farmers, labour used on the farms, age of goat farmers, system of production used (traditional, semi-intensive, intensive), methods of milking, processing of milk (on farm and or by buying up companies), ration of on farm processing, annual quantity of milk processed on farms and in the professional dairies; number of processing dairies and the availability of them for goat farms.

The following countries were taking part in the data collection: Albania, Armenia, Belarus, Bulgaria, Czech Republic, Croatia, Georgia, Greece, Hungary, Macedonia FYR, Moldavia, Montenegro, Romania, Russia, Serbia, Slovakia, Slovenia, and Ukraine. Data was collecting from one organization per country except Hungary, from where the information of three organizations were used: Central Office of Statistics (Hungary-KSH); Hungarian Sheep and Goat Breeders’ Association (Hungary-MJKSZ) and Hungarian Sheep and Goat Dairying Public Utility Association (Hungary-MJKKHE).

The collected data were summarized and evaluated using Microsoft SPSS for Windows 10.0 software.

RESULTS AND DISCUSSIONS

The farming

In relation mainly to the number of animals kept, the farms could be operated as full time or part time and hobby farms. The full time farms were dominating in Albania (98.58%), Armenia (92%), Greece (85%), Georgia (60%), but in Croatia (37%), Hungary (35%) and Serbia (20%) the ratio of this activity was much lower. The part time farms had the biggest ratio in other countries: Serbia 60%; Croatia 48%; Hungary 40%. The hobby farms had a strong ratio in Georgia (30%), Hungary (25%), and Serbia (20%). This distribution was not really known in the other countries.

Connecting to the number of animals kept the aim of keeping goats was rather steady, with a little differences from country to country. In Albania 98.4% of goat farms were operating as dual purpose (milk and meat) activity, and only 1.6% of farms were interested to produce hair. In Armenia and Serbia the aim of having goats were only getting milk (100%). This reason was dominating in Greece (98%), Slovakia (96%), Hungary (90%), and Croatia (68%). In Czech Republic 313 dairy goat farms were registered along with 14 meat and 3 hair goat farms. The meat had dominant aim in Georgia (70%), and in Slovenia (81%), and was limited in Hungary (10%).

Only a couple of % of the farms was producing hair (mohair or cashmere) in Romania and Slovakia. This activity inherited from late '80s and early '90s when it was introduced as new fashion and a good number of these exotic breeds were imported into this region, but it was almost disappeared by 2014.

Production systems and milking systems

Biggest parts of the goat farms were operated under extensive traditional production system in most of the countries (*Table 1*): Georgia (100%); Ukraine (99.2%); Belarus (98%); Moldavia (94%); Russia (90.1%); Serbia (85%); Macedonia FYR (80%); Hungary (75%); Romania (77%); Bulgaria (70%); and Montenegro (50%). Some other countries an improved system was used, where the animal received significant ratio of supplement feed beside the pasture: Slovenia (90%); Greece (85%); Slovakia (70%); Albania (63.77%); and Montenegro (40%). The intensive indoors goat keeping was dominating in Croatia (60%), and had strong importance in Greece, Montenegro (10%) and Hungary.

The traditional hand milking was still over dominated in most of the studied countries: Georgia (practically 100%); Ukraine (99.2%); Albania (98.8%); Macedonia FYR (98.5%); Belarus (98%); Moldavia (94%); Russia (90.1%); Montenegro and Romania (80%); Serbia and Greece (70%); as well as Slovakia (64%). Simple milking machine (mainly bucket milking on

stalls) was dominating in Croatia (80%), and Hungary (70%), but this category had an important role in Slovakia (34%); Serbia (25%); Greece and Bulgaria (20%); as well as Romania and Montenegro (15%). The most up to date milking parlor was dominating in Slovenia (97%), but played an important role in Hungary (20%); as well as in Bulgaria, Croatia and Greece (10%).

Milk production of farms

The quantity of milk produced by one average goat farm is highly depending on the number of goats kept and milked as well as from the breeds bred on that particular farm (*Table 2*). According to the Hungarian data dominant part of the farms produced less than 5 000 litres annually, as the average doe number was quite low. Similar, but much lower data was found in the case of Albania (68.4%). In Georgia 100% of farms was producing milk between 5 000 and 10 000 litres per year. The 70 % of the Armenian farms were also belonging to this category. In some other countries (Slovenia 30%; Albania 22.6%; Croatia 21%, Serbia 20 %) significant part of the farms could be found in this category. Half of the farms were producing milk between 10 000 and 30 000 litres annually in Greece, and in some countries high ratio of farms were also listed into this category: Slovenia 38%; Serbia 30%, Croatia 30%; Armenia 20%. The category between 30 000 and 50 000 litres had significant role only in Croatia (25%), Serbia (20%) and Greece (15%). There are some bigger sized dairy goat farms in Serbia (30%) which had milk yield 50 000 and 100 000 litres annually; and 15% of the Greek goat farms were also belonging into this category. Some farms were produced milk between 300 000 and 500 000 litres in Croatia (2.0%) and In Hungary (0.02%).

The lands used by goat farmers

Not much data are available about the size lands used by the goat farmers in the studied countries (*Table 3*). In Georgia the goat farms are operating without, and half of the goat keepers have no land at all in Armenia. In the case of Hungary (16.4%), Greece (15%) and Croatia (4%) this ratio is much lower. Goat farms have less than three hectares in Albania, and the bigger part of the goat farms are belong to this category in Hungary (53.2%) as well. In the case of Greece (40%) and Armenia (30%) this category also has a significant importance. The farm size between 3 and 10 hectares is dominating in the case of Slovenia (70%), but and also very high in Greece (40%) and Croatia (41%). In the case of Serbia dominant parts of goat farms have land between 10 and 30 hectares. This size category is also important in Croatia (15%) as well, while in other countries this ratio is limited. The category between 30 and 50 hectares is also significant in the case of Serbia

(20%), and some farms in Croatia (6%) and Hungary (3.1%) are also belonging to this size. According to the statistics some bigger farms (between 50 and 100 hectares) also keep goats as well, like Croatia (2%) and Hungary (3.3%). In the case of Hungary, some farms having goats as well are belong to between 100 and 300- (3.3%) and even above 300 hectares (1.4%) as well. In the biggest land categories the goat keeping and breeding is not dominating, there are other agricultural activities as well.

The ownership of lands used

Not much data were available about the ownership of lands used by goat farmers concerning the studied countries (*Table 4*). Most of the lands used by goat farmers were belonging to other ownership. In the case of Georgia 100% of goat farms owned less than 10% of the lands they use. In Armenia half of farms owned less than 10-, and the other half of goat farms owned between 10 and 20% of the land used. In the case of other studied countries these categories had better distribution. In Greece 60% of land used were belonging to the category where the ownership was between 30 and 50%. This category was giving 40-, 35- and 28% in the case of Serbia, Hungary and Croatia. The 60% of the lands used by Serbian goat farmers were belonging to the category above 50%, meaning that only the smaller part of land used was under other ownership. In Hungary, 55% of lands used were belonging to this category, while in the case of Croatia (38%) and Greece (10%) this category had smaller data.

The abovementioned data showed that most of the lands used by the goat farmers were belonging to other ownerships, and in general, the bigger part of the lands (grassland and arable land) needed for goat keeping was rented from somebody else. The grasslands (permanent pastures) were dominantly rented from the local municipality in most of the countries: Bulgaria 100%; Armenia 80%; Greece 65%; Georgia and Serbia 60-60%. In the case of Croatia the state (63%) was the dominating grassland owner from the pastures were rented. In Hungary, the state was also the strongest owner, however, its ratio was only 30%. Significant part of grasslands were rented from other land owners (Hungary; Serbia and Georgia 30-30%), which means dominant part of them were not belonging to agriculture activity. The ratio of other farmers had only significant value in the case of Hungary (20%), while in other countries this category plaid only limited role.

In the case of renting arable lands the local municipality had dominant role only in two countries (Armenia 80%; Croatia 68 %), while in the others (Hungary 30%; Serbia 30% and Georgia 20%) its value was much lower, however, still significant. The state had strong resource only in Hungary (35%). The other land owners had over dominating role in the case of Greece (90%), and dominating in Serbia (60%). The other land owners and other

farmers had equally strong resources in the cases of Bulgaria (50-50%) and Georgia (40-40%).

Labour utilised on farm level

In most country the goat farming was a kind of family business and only limited labours employed from outside in the farms (*Table 5*). Most of the farms used only family members in Hungary (98.1%), Greece (90%), Croatia (85%), Bulgaria (80%), and Georgia (75%). A good part of the farms were also belonging to this category in Albania (34.5%) and Serbia (20%). Less than 3 persons employed as outside labour on the 70% of the farms in Armenia, and this category dominated in Albania (65.4%) and in Serbia (65%), but it had important role in Bulgaria (20%) as well. The ratio of 3-5 labours employed was highest in Armenia (20%) and in Serbia (15%). As the size of goat farms particularly dairy farms increased the demand for outside labour increased, however, only limited ratio of farms needed 5-10 or even more than 10 labours in this region. These big farms employed these “extra” labours in milking process and during the milk processing in their own dairies.

The age and the education of goat farmers

The age and level of education of goat farmers were not known or studied in half of goat farmers (*Table 6*). The age groups were in a kind of exceptional situation in the case of Armenia and Georgia, where the 70 and 40 % of farmers were belonging to the 30-40 years age category. The distribution in Croatia, Greece, Georgia, Hungary and Serbia were acceptable, but the goat farmer population had a kind of getting old tendency. Dominant part of them was older than 40-, and high part of them even above 60 years of age. Albania could not be listed into these categories. Here about 1% of goat farmers were younger than 25 years, 69 % of them were belonging to the category between 25 and 60 years, and 30 % of farmers were older than 60 years.

The education level of farmers was different country to country, but in general, it was rather low. The elementary / primary school was dominating in the case of Greece (75%) and Albania (62.8%), and was also very high in Hungary (43.9%). The ratio of skilled labour was the highest in Albania (31.2%), but rather low in other countries. The biggest part of the goat farmers had at least secondary school education in Croatia (69%), in Armenia, Georgia and Serbia 50%, and Hungary (45.4%). High part of goat farmers had college education in Armenia and Serbia (35%), but the university degree was the highest in the case of Georgia (30%). In the other countries this kind of studies has not been carried out yet.

Table 1: Goat production and milking systems in Central and Eastern Europe

Country	Production systems (% of farms)			Milking systems (% of farms)		
	Traditional (extensive) grazing	Improved system (grazing + supplement)	Intensive indoor	Hand-milking	Simple machine milking	Modern milking parlour
Albania	36.20	63.77	0.03	98.8	1.192	0.008
Armenia	70	30	-	90	8	2
Belarus	98	2	-	98	1.6	0.2
Bulgaria	70	30	-	70	20	10
Croatia	10	30	60	10	80	10
Czech Republic	no exact data available			in. h.	< 10 goats	< 30 goats
Georgia	100	-	-	100	-	-
Greece	5	85	10	70	20	10
Hungary–KSH	35	45	20			
Hungary–MJKSZ	75	20	5	10	70	20
Macedonia (FYR)	80	20		98.5	1.0	0.5
Republic of Moldova*	94	5	1	94	5	1
Montenegro	50	40	10	80	15	5
Romania	77	20	3	80	15	5
Russian Federation*	90.1	9.89	0.01	90.1	9.89	0.01
Serbia	85	10	5	70	25	5
Slovakia**	30	70	-	64	34	2
Slovenia	8	90	2	2	1	97
Ukraine*	99.2	0.79	0.01	99.2	0.79	0.01

* Estimated. ** Data refer only to nucleus herds.

in. h. = individual households.

Table 2: Goat milk production on farms in Central and Eastern Europe

Country	% of farms					
	< 5 000 litres	5 000–10 000 litres	10 000–30 000 litres	30 000–50 000 litres	50 000–100 000 litres	300 000–500 000 litres
Albania	68.4	22.6	6.5	1.8	0.7	-
Armenia	8	70	20	2	-	-
Bulgaria	no relevant data					
Croatia	17	21	30	25	5	2
Czech Republic	no relevant data					
Georgia	-	100	-	-	-	-
Greece	10	10	50	15	15	-
Hungary–KSH	97.76	1.78	0.32	0.1	0.02	0.02
Romania	no relevant data					
Serbia	-	20	30	20	30	-
Slovakia	no relevant data					
Slovenia	18	30	38	12	2	-

Table 3: Areas of land used by goat farmers in Central and Eastern Europe (% of farms)

Country	No land	< 3 ha	3–10 ha	10–30 ha	30–50 ha	50–100 ha	100–300 ha	> 300 ha
Albania	-	100	-	-	-	-	-	-
Armenia	50	30	15	5	-	-	-	-
Bulgaria	-	-	-	-	-	-	-	-
Croatia	4	22	41	25	6	2	-	-
Czech Rep.	-	-	-	-	-	-	-	-
Georgia	100	-	-	-	-	-	-	-
Greece	15	40	40	5	-	-	-	-
Hungary–KSH	16.4	53.2	10.4	8.9	3.1	3.3	3.3	1.4
Romania	-	-	-	-	-	-	-	-
Serbia	-	-	20	60	20	-	-	-
Slovakia	-	-	-	-	-	-	-	-
Slovenia	-	20	70	10	-	-	-	-

Table 4: Shares of land owned by goat farmers and distribution of rented arable and grasslands in Central and Eastern Europe

Country	Land owned by goat farmers (% of farms)					Rented grassland (% of farms)				Rented arable land (% of farms)			
	< 10%	10–20%	20–30%	30–50%	> 50%	From local municipality	From State	From other landowners	From other farmers	From local municipality	From State	From other landowners	From other farmers
Albania	no relevant data												
Armenia	50	50	-	-	-	80	10	5	5	80	10	5	5
Bulgaria	no relevant data					100		-	-			50	50
Croatia	5	12	17	28	38	23	63	5	9	68	5	12	15
Czech Rep.	no relevant data												
Georgia	100	-	-	-	-	60	-	30	10	20		40	40
Greece	5	5	20	60	10	75	10	10	5			90	10
Hungary–KSH	-	10	20	35	55	20	30	30	20	30	35	20	15
Romania	no relevant data												
Serbia	-	-	-	40	60	60	10	30	-	30	10	60	
Slovakia	no relevant data												
Slovenia	no relevant data												

Table 5: Numbers of hired labourers working on goat farms in Central and Eastern Europe (% of farms)

Country	None (only family members)	< 3	3–5	5–10	> 10
Albania	34.5	65.4	-	0.1	-
Armenia	5	70	20	3	2
Bulgaria	80	20	-	-	-
Croatia	85	10	5	-	-
Czech Republic	-	-	-	-	-
Georgia	75	10	10	5	-
Greece	90	10	-	-	-
Hungary–KSH	98.1	1.0	0.4	0.2	0.3
Romania	-	-	-	-	-
Serbia	20	65	15	-	-
Slovakia	-	-	-	-	-
Slovenia	-	-	-	-	-

Table 6: Ages and education levels of goat farmers in Central and Eastern Europe

Country	Age of farmers (% of farms)					Education level of farmers (% of farms)				
	< 30 years	30–40 years	40–50 years	50–60 years	> 60 years	Primary school	Skilled labour	Secondary school	College	University
Albania	?	?	?	?	?	62.8	31.2	2.8	-	3.2
Armenia	4	70	10	6	2	2	10	50	35	3
Bulgaria	no data available					no data available				
Croatia	11	18	27	32	12	7	11	69	8	5
Czech Republic	no data available					no data available				
Georgia	5	40	30	20	5	5	5	50	10	30
Greece	5	10	30	25	30	75	10	10	5	-
Hungary–KSH	5.2	20.0	22.6	23.7	28.5	43.9	-	45.4	8	
Hungary–MJKSZ	no data available					no data available -				
Romania	no data available					no data available				
Serbia	-	-	50	35	15	15	-	50	35	-
Slovakia	no data available					no data available				
Slovenia	no data available					no data available				

CONCLUSIONS

The above mentioned information made clear that the number of goats has been decreasing in the region with the exception of Romania. The main conclusions of this part of the study could be summarised as follows:

- The ration of full-time, part-time and hobby farming has got similar trend.
- In production the traditional grazing system was dominating.
- The hand milking was still markedly used in these countries.
- The goat farmer had only limited size of land and significant part of the land used by them were rented.
- Only limited part of goat farms were using labour from outside of the family.
- Most of the goat farmers would need basic education and some of them further education to be able to utilise the improving breeds and being able to keep the indigenous breeds under more profitable system.
- Innovation in management and housing has got an essential importance in all studied countries. Innovation in milking equipment is highly required to replace the hand milking.

REFERENCES

1. Getya, Andriy (Ministry of agrarian policy and food of Ukraine, Kiev) – personal communication
2. Kyssa Ivan (IPAAB «East-West», Minsk, Belarus) – personal communication
3. Osadchaya, Olga (All-Russian Research Institute for Animal Husbandry, Russia, Dubrovitsy, Moscow Region) - personal communication
3. Nistorica, Tatiana (Ministry of Agriculture and Food Industry of the Republic of Moldova) – personal communication

