

PRODUCTION SYSTEMS AND ECONOMICS OF SHEEP HUSBANDRY IN SOUTHERN ALBANIA

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Abstract: Small ruminants in Albania seem to have a great importance within the livestock sector. The small ruminants' populations count almost 2.7 million heads, out of which 1.8 million are sheep. The estimated value of the commercialized small livestock population is about 35 million Euros. The total value of the small ruminant population is estimated at 140 million Euros. More than 1.5 million heads of small ruminants are consumed each year in the local market. Import of small ruminant's meat was at a level of 599 ton/year (2010 data). This study aimed the assessment of the production systems and economics of sheep husbandry in the southern regions of Albania. The different husbandry systems employed (transhumant, non transhumant, semi-intensive) showed only slight differences in terms of outputs, but not the expected differences regarding inputs (feeds) and corresponding costs (semi-intensive system). The economic assessment demonstrates very useful and interesting results. Overall Gross Margin per ewe and lambs at weaning was in the area of 6,369.00 ALL (1 Euro=136 Albanian Lek, ALL), the range of GM was enormous between different farms (3,042.6 ALL – 11,322.4 ALL), mainly caused by the large differences in feeding and labor costs per ewe.

Key word: small ruminant, sheep, economics, gross margin

Introduction

The small ruminants' population (ovine and caprine animals) consists of almost 2.7 million heads of which 1.8 million are sheep, according to MoAFCP statistical data. The estimated value of the commercialized small livestock population is about EURO 35 million. The total value of the small ruminant population is estimated at EURO 140 million (*FAO 2009; UNDP 2007; MoAFCP 2007; MoAFCP 2009; CARDS 2007*).

The most common farming system is based on extensive pasture use. Diseases like brucellosis and anthrax are still affecting population and almost a thousand people per year are hospitalized. Small ruminants and products of small ruminants' origin cannot be exported, for the time being. Import of small ruminants meat was at a level of 599 ton during the year of 2008 (*MoAFCP 2009*), which corresponds approximately to 17,000 live animals (average live-weight of 35 kg). The level of imports for sheep meat remains almost constant over the years (*MoAFCP 2007; MoAFCP 2009; CARDS 2007; Intersectorial strategy*).

In the major part of farms, size of sheep flocks ranges from 50 h/flock to 150 h/flock. In the last years, the number of keepers with more than 300 animals up to 600 h/flock have increased. In some cases in Saranda family members have joint their individual flocks and the number of animals is going up to or more than 1000 sheep. It's very common to find mixed flocks of sheep and goat in study area (*GTZ 005; World Bank 2009; MoAFCP 2009*).

More than 1.5 million head of small ruminants are consumed each year in the local market. The total amount of about 0.7 million of small ruminants per year are commercialized in the urban and rural areas of the whole country. Meat and cheese of small ruminant origin represent the main resources of proteins for the human beings in rural areas (*NVEU 009; Kipi et al 2010; Leoneti 2004; MoAFCP 2007*).

The trading relationships among stakeholders in the value chain for sheep meat are very instable. There are practically no formal contracts between farmers and middlemen. Even the verbal agreements are not common, often also not maintained. Some oral agreements exist with middlemen, restaurants and outlets, especially in Tirana.

Materials and Methods

The field survey activities have been carried out in the districts of Saranda and Tepelena, using qualitative and quantitative methods. As the grazing areas of Saranda and Delvine are connected and used by shepherds of both districts, the survey area was partially extended to Delvine breeders.

Data have been collected through interviewing breeders, farmers, livestock specialists, local government authorities, milk collectors, representatives of The Agriculture and Food Departments in the districts.

At the beginning of the field mission two general meetings were organized by the project leader in collaboration with Department of Agriculture in the respective districts. Breeders and livestock specialists attended those meetings in each representative district. In both meetings the purpose of the survey was explained to the breeders and the importance to provide information and as much as possible data, in order to give a realistic orientation to the future activities.

The, total number of interviews are 40 in both districts. The information in 9 out of 40 check lists was however so incoherent, that they were excluded from the calculations after a first screening (data validation).

The interviews have been done in different communes and villages, starting with farmers who had participated in the meetings. Within the village the tendency was to interview breeders with medium and large flock size (commercially oriented), following also the indications from the Agriculture Regional Office and from the Veterinary Services on suitable breeders.

Based on the information from keepers, GM method has been applied to analyze the economics of small ruminants' production, with the emphasis of identifying the cost and revenue from production of lambs.

Results and Discussion

Main findings. A common trait of the different production systems encountered is the fact that they are mainly extensive farming systems, based on the natural pasture for grazing. A typical flock sizes is between 50 and 150 sheep (ewes). The reasons for having a limited number of sheep, mentioned by farmers, are:

- the cost of concentrate (feed stuff) especially in the winter season;
- limited availability of pasture;
- is the lack of water on the summer pastures (absence of water points);
- the availability of family labor force: it seems that a flock size of 250 ewes is considered as an upper limit to be managed mainly with family labor force.

Besides these common characteristic of livestock breeders in Saranda and Tepelena, four distinguished farm typologies are described below. Between the second category ("non transhumant") and the third ("semi-intensive"), there is no firm line of distinguishing farms, as both rely still strongly on natural pastures and – although considered "non transhumant" – practice grazing on mountain pastures for a shorter period and within their district (mainly encountered in Tepelena). Both systems are distinguished on the base of the level of supplementary feeding and health care for the animals, according to the evaluation of the livestock keepers. The results of GM calculation however do rather reflect a very broad range of intensity and costs within each of the described groups (*Leoneti 2004; UNDP 2007*).

1. Long distance Transhumance, where herders from Saranda and Tepelena move to other district like Kolonja (Gramozi Mountain) and Korca (using Vithkuqi, Leshnja, Lenia natural pastures), covering a distance of more than 200 km. This movement is happening during the summer period towards areas in higher altitude, having sufficient pasture and - the most important - having water

resources. Approximately 35-40% of breeders belong to this category. Their flock size is from 130-150 and more.

2. Non-transhumant, pasture based system, having free of charge access to pastures during the whole year. Animals graze on the mountain pasture during the summer and in winter time they graze on the arable land in lower areas. This arable land usually is cultivated by the owners with maize and for a period of around 5 months is given by rent to the livestock breeders for animal grazing. Approximately 35-40% of breeders belong in that category. Usually their flock size is limited (not confirmed by survey data) and typically their flocks are mixed with goats and cattle. Farmers underline that, sheep do not lose weight during the migration and that the costs of production are generally low.

3. A semi – intensive production system is still based on natural pastures but additional feeding with supplements (“concentrate”), mainly maize (oat) and grass-legume (alfa-alfa) is practiced to a higher level (not reflected or confirmed by survey data). Approximately 20-25% of breeders belong in that category. They intend to use good husbandry and breeding practices, using more concentrate to feed their flocks and paying more attention to the veterinary treatments. Cross – breeding the local breed is aiming to produce more milk per ewe (not reflected or confirmed by survey data).

4. Only a few breeders use an intensive production system. They are purchasing feedstuff (maize, oat) and renting agriculture land to cultivate alfa-alfa, producing also hay for the winter period. Sheep are mainly a newly introduced breed from Greece. Typically the breeders are young, often with an emigration background to Greece and their aim is to further invest in this sector.

Gross Margin sheep. The economic results are compared between the 3 systems described above, using the data of 9 - 11 farms per group. The intensive husbandry system is added as a single farm observation (case study). Gross Margin calculation refers to the unit of one ewe plus lamb at weaning.

Table 1. Gross Margin overview in ALL (survey data)

	Long Distance Transhumant	Non transhumant	Semi- intensive	Intensive
Production	11 farms	10 farms	9 farms	1 farm
Estimated home consumption of milk / sheep	63.60	58.80	58.90	180.00
Estimated milk consumption by lamb	1,502.24 (16.4kg x 91.6 ALL)	1,453.5 (17.1kg x 85 ALL)	1,475.6 (15.5kg x 81.2 ALL)	950.0 (9.5kg x 100 ALL)
Sales of milk / sheep	6,454.1 (70.5kg x 91.5 ALL)	5,738.5 (62kg x 92.5 ALL)	5,587.7 (68.8kg x 81.2 ALL)	9,600.00 (96kg x 100 ALL)
Value of weaned lambs	4,347.8 0,9 x 11.3kg x 427.5ALL	4,318.1 0,85 x 11.5kg x 441.7ALL	5,237.5 0,99 x 11.6kg x 456.1ALL	4,791.6 0,99 x 11.0kg x 440.00ALL
Value of old ewe (replacement)	2,418.2 0,2 x 35kg x	2,415.0 0,2 x 35kg x 345.0 ALL	2,469.4 0,2 x 35kg x	2,457.0 0,2 x 35kg x

	345.5ALL		352.8ALL	351.0ALL
(1) Total value of production/ewe	14,785.94 ALL	13,983.9 ALL	14,829.1 ALL	17,978.60 ALL
(-) Home consumption milk	63.60	58.80	58.90	180.00
(-) milk cons. by lamb	1,502.24	1,453.5	1,475.6	950.0
(2) Market value / ewe and lamb (revenue)	13,220.1 ALL (11,868.5 - 15,220.0)	12,471.6 ALL (9,269.9 - 15,734.0)	13,294.6 ALL (11,235.7 - 16,200.6)	16,846.60 ALL
Costs				
Pasture and basic fodder (hay, alfalfa)/ewe + lamb	2,005.2 (896.5 - 3,697.5)	2,387.1 (1,243.1 - 4,232.0)	1,868.7 (848.4 - 3,299.0)	3,697.54
Supplementary purchased feeds (maize, etc.) /ewe +lamb	1,279.5 (458.8 - 2,082.8)	1,153.6 (0 - 2,915.0)	1,215.4 (250.3 - 2,935.7)	2,569.2
Total feeding costs / ewe and lamb	3,284.70 (1,355.3 - 4,735.1)	3,540.70 (2,128.9 - 5,257.38)	3,086.7 (1,098.76 - 5,163.24)	6,266.74
Vaccination and vet treatment/ewe	397.1 (276.7 - 1,175.6)	338.60 (257.14 - 392.5)	360.4 (277.27 - 572.65)	507.5
Vaccination and vet treat./lamb (until weaning)	144.00 (103.8 - 168.9)	152.70 (99.66 - 231.82)	145.5 (106.25 - 201.18)	136.0
Total costs animal health	541.1 (389.6 - 1,279.45)	491.30 (387.91 - 611.82)	505.90 (403.59 - 773.82)	643.30
Paid temporary non family labor	1,081.6 (0 - 2,100)	584.5 (0-1,166.7)	820.6 (0-1,555.7)	
Paid permanent non family labor	215.3 (0 - 1,000)	466.3 (0-1,200.0)	442.5 (0-1,200.0)	800.00
Total labor costs	1,296.8 (760.9 - 2,100)	1,050.8 (0-1,930.0)	1,263.2 (0 - 2,755.6)	800.00
Replacement	1,037.4	1,057.74	1,073.18	1,514,8
Transport of herders	239.4	16.7	274.5	-
Transport of inputs	103.0	121.4	89.7	-
Costs of dogs	335.1	310.3	454.8	-
Costs for horses	118.6	94.8	176.4	-
Energy	-	-	7.0	-
Total other costs	1,833.5 (1,108.78 - 2,725.5)	1,660.9 (1,412.21 - 1,729.96)	2,075.6 (1,325.4 - 3,037.7)	1,514.90
Grand Total costs/ ewe and lamb up to weaning	6,956.1 (4,453.6 - 8,825.9)	6,743.7 (4,876.6 - 8,207.5)	6,931.4 (3,370.9 - 9,480.2)	9,224,94
GM 1 / ewe with lamb (2) – (3)	6,263.9 ALL (3,042.6 - 11,322.4)	5,727.9 ALL (4,384.27 - 8,780.51)	6,363.2 ALL (4,699.3 - 9,449.3)	7,621.7 ALL

The total value of production per ewe includes the home consumption of milk and the milk consumption of lambs, valued at market prices. The market value per ewe (revenue) sums up all those products which could be sold from one ewe, including the offspring (“off take”). The values for the 4 categories range from 12,471.6 ALL (“non-transhumant”) over 13,220.1 ALL (“transhumant”),

13,294.6 ALL (semi-intensive”) to 16,846.6 ALL (“intensive”). The range within each category (figures in brackets) indicates however much higher differences amongst the individual breeders, then between categories.

The differences in production value and revenue are mainly linked to the production level (sales) of milk per female (62 kg – 96 kg) and to the different “off-take rates” (0.85 – 0.99).

Regarding the costs, the significant differences regard:

- Feeding costs: the differences between categories are not significant (3,084.00 ALL – 3,540.00 ALL/ewe), with the exception of the “intensive” farm (6,266.74 ALL/ewe). The difference between individual farms in the different categories is significant: the range is between 1,099.00 ALL and 5.257,38 ALL / ewe and lamb), and raises questions on the rational utilization and quality of feed stuff.

- The high feeding costs in the “intensive” farm can be expected and are justified by the output (96 kg milk/ewe), but “other costs” like transport etc. are probably under-represented in this farm.

- Labor costs: all the farms in the “transhumant” category face costs for additional labor force (700 – 1,800.00 ALL/ewe), whereas some farms in the “non transhumant” and “semi-intensive” category manage their flocks without additional (paid) labor force, leading to differences of between 0 ALL and 2,254.00 ALL/ewe and lamb.

- In the “semi – intensive” farm category, the relatively low costs (feeding, labor, animal care) are not clearly in line with the relatively high output (total revenue/ewe and lamb). Higher costs compared to the previous systems could have been expected.

- Specific costs linked to transhumance of animals and herders were strongly emphasized by farmers of this category during the interviews. Distributing these costs over the whole flock, the overall expenditures however seem not to be significantly higher than in the other categories and all in all the transhumant system seems to be still competitive

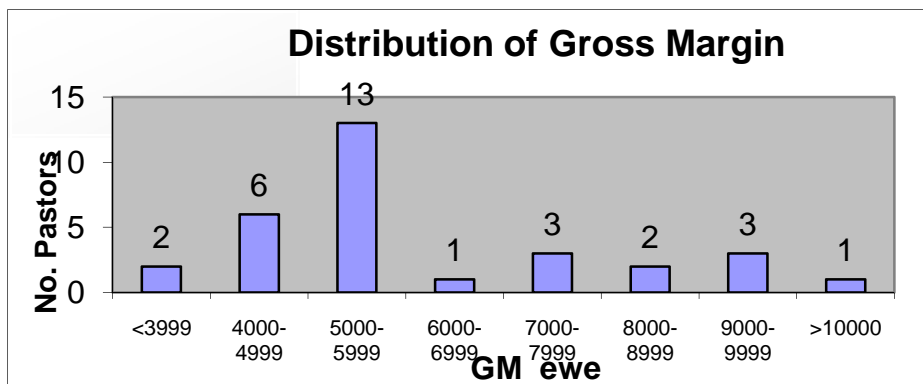
- Feeding costs represent between 45% and 53% of total costs in the different categories (68% in the intensive farm), followed by “other costs” (replacement, transport, dogs & horses) with 25-30%, followed by labor costs (15,6-18,2%). The huge differences of costs between individual farms, especially for feeding and labor, should lead to further investigations about the proper utilization of inputs (feed stuff) and the appropriate management (*GTZ 2005; Mada; MoAFCP 2004; Kipi et al 2010*).

Overall results indicate a Gross Margin per sheep for an “intensive” farm at 7,622.00 ALL (one single observation), followed by the “semi intensive” farms with 6,363.00 ALL (9 observations), the “long distance transhumant” farms with 6,234.00 ALL (11 observations) and the “non transhumant” farms with 5,728.00 ALL. Overall average is of 6,369.00 ALL (46,8 €)/ sheep with lamb at weaning.

These results match very well with the ADAMA sector- study from February 2010 (on behalf of SNV), especially at the revenue level (revenues in the range of 12,000.00 ALL are indicated). From the present study however higher costs emerged, compared to the study (5,000.00 ALL at ADAMA - SNV) and consequently a slightly lower Gross Margin as an overall result (7,000.00 ALL at ADAMA - SNV).

Distribution of Gross Margins and Family Incomes: Graphic 1 shows the distribution of all GM results of the survey, according to classes between 4,000.00 and 10,000.00 ALL/sheep and lamb.

Graphic 1. Distribution of Gross Margins



The graphic shows that 42% of farms (13) are concentrated in a single GM class between 5,000.00 and 6,000.00 ALL. In 26% of farms (8), GM per ewe is less than 5.000 ALL. The remaining 32% of farms are scattered over the 5 GM classes of more than 6,000.00 ALL/ewe.

The farms with minimum GM (<4,000.00 ALL) belong to the "long distance transhumant" farms, whereas the distribution in the other GM classes is equally shared among the 3 farming systems described and no trend for the one "successful" farming system can be identified (*Kipi et al 2010*).

The above figures can be translated into family income by taking into consideration the flock size of ewes and the number of full time family labor (nucleus), involved in sheep husbandry:

The average flock size within the survey farms was 269,1 ewes per farm, managed with a labor force of 4.28 full time employed family members¹. This translates into 69.89 ewes per full time labor force and approximately to an annual

¹ Seasonal and permanent external labor force is considered as a cost in the GM calculation

revenue of 445,830.00 ALL (3,278 €), based on the average GM per ewe (6,369.00 ALL).

The situation at individual farm level may however differ significantly from this overall average, considering the wide range of GM classes encountered in the survey and the distribution of farms in the different GM classes (see Graphic 1).

In comparison: the salary scale for non skilled industrial labor force is in the range of 25,000.00 ALL/month (300,000.00 ALL/year).

Conclusion

The different husbandry systems described (transhumant, non transhumant, semi-intensive) show only slight differences in terms of output, but not the expected differences regarding inputs (feeds) and corresponding costs (semi-intensive system).

The farm management does not differentiate between milk-production and rearing or fattening of lambs, which makes it difficult to assess the resources, inputs and costs related to the different farm enterprises and more investigation is needed, especially in the area of lamb fattening.

In absence of other sources of information, the data gathered during the interviews must be considered however as a valid approximation to the real conditions. Very useful and interesting economic results were obtained, indicating some of them:

- Overall Gross Margin per ewe and lambs at weaning is in the area of 6,369.00 ALL, which is a valid bench mark for the impact of projects interventions, matching also well with other recently publicized results.

- The range of GM is enormous between different farms (3,042.6 ALL – 11,322.4 ALL), mainly caused by the enormous differences in feeding- and labor costs per ewe.

- The distribution of farms in different income classes is not equally, but shows that part of the farms are operating at a low level of economic sustainability, while others are operating very successfully. This is also to be considered as an important baseline and indicator for the monitoring and evaluation of project impact.

- The modest share of income from “light lambs” (14%-16%), despite the fact that they represent 45% to 50% of off-take (sold animals), mainly in extensive farm types with high seasonal prices (450.00 ALL/kg live weight).

- The potential of adding value by producing heavier lambs, only if the conditions are suitable (optimistic and pessimistic).

- The major cost categories (feeding, labour) have been assessed and cost saving – as a possible result of association services – can be monitored.

Recommendations. Besides the core activities linked to the establishment of a quality and safety value chain for lamb meat, during the interviews several

priority areas (cross cutting issues) were indicated to focus the work of future livestock associations (project interventions):

- The supply of appropriate quality and rational utilization of inputs (feed stuff);
- The introduction of simple farm management tools, like balance sheets, in support of rational utilization of inputs and decision making;
- To improve the feeding practice, taking into account the specific needs in quality and quantity of different categories of animals (milking ewes, weaned lambs, etc.);
- To elaborate, experiment and put in practice alternative strategies of rearing/fattening lambs (increase added value, contribute to sustainability of associations, ownership and management of value chain);
- To make efforts for improving access to pasture and sustainable pasture management;
- To respond to the needs of elaborating and implementing of an appropriate breeding strategy (milk-, meet, double purpose);
- To support the tendency especially of the younger generation of breeders of shifting towards more sedentary sheep husbandry systems (infrastructures for herders).

Proizvodni sistemi i ekonomska efikasnost ovčarstva u južnoj Albaniji

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Rezime

U Albaniji sitni preživari su od velike važnosti za stočarsku proizvodnju. Populacija sitnih preživara broji skoro 2.7 miliona grla, od kojih 1.8 miliona su ovce. Vrednost komercijalnog dela populacije sitnih preživara procenjuje se na 35 miliona evra. Ukupna vrednost populacije sitnih preživara procenjuje se na 140 miliona evra. Više od 1.5 miliona grla sitnih preživara nađe se u lokalnim marketima svake godine. Izvoz mesa sitnih preživara bio je 599 t / godina (podatak iz 2010. godine).

Ova istraživanja imaju za cilj procenu proizvodnog sistema i ekonomije ovčarske proizvodnje u južnom regionu Albanije. Različiti sistemi proizvodnje (nomadski, nenomadski, polu-intenzivni) pokazuju samo minimalne razlike u output-ima, ne i očekivane razlike koje su u skladu sa input-ima (hrana) i odgovarajućim troškovima (polu-intenzivni sistem). Ekonomska procena pokazuje vrlo korisne i interesantne rezultate. Bruto marža po ovci i jagnjetu pri odlučivanju

bila je oko 6.369,6 ALL (1Eur=136 ALL), opseg GM bio je ogroman između različitih farmi (3.042,6 ALL – 11.322,4 ALL), uglavnom zbog velikih razlika u ishrani i troškovima rada po jednoj ovci.

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