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Labour characterization of Andalusian goat farms. Future perspectives

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Abstract. Multiple factors affect the continuity of goat farms: market conditions, availability of land, application of new technologies, etc. Among these factors, those related to labour play an important role. The aim of this study is to characterize all aspects related to labour in goat farms in Andalusia (Spain) and propose some strategies for improvement of worker's life conditions. 75 Andalusian goat breeders were interviewed. The main problems identified were: the length of working day, the lack of holidays and the lack of training. As a consequence of these problems, young people do not continue in goat production. Some strategies to solve these problems are: to improve feeding management, to apply new technologies and to promote associations that facilitate the hiring of replacement workers when farmers need to take a holiday.

Keywords. Small ruminant – Working day – Continuity.

Caractérisation de la main-d'œuvre des fermes caprines de l'Andalousie. Perspectives au futur

Résumé. *Plusieurs facteurs ont une influence sur la continuité des exploitations caprines : caractéristiques du marché, disponibilité de pâturages, application de nouvelles technologies, etc. Parmi ces facteurs, ceux qui sont liés à la main-d'œuvre ont une importance spéciale. L'objectif de cette étude est la caractérisation de tous les aspects qui concernent la main-d'œuvre des exploitations caprines de l'Andalousie (Espagne) et la proposition de quelques stratégies pour améliorer la qualité de vie des travailleurs. 75 enquêtes ont été répondues par les éleveurs caprins de l'Andalousie. Les principaux problèmes identifiés ont été les suivants : l'excessive longueur de la journée de travail, le manque d'une période de vacances et le manque d'un service de formation. Les conséquences de ces problèmes sont les doutes que les jeunes ont quand ils doivent décider s'ils continuent ou non la production caprine quand la relève générationnelle doit être réalisée. Quelques stratégies pour essayer de résoudre ces problèmes ont été proposées : améliorer la gestion de l'alimentation, utiliser de nouvelles technologies et promouvoir des associations qui facilitent l'embauche de travailleurs remplaçant les éleveurs quand ils ont besoin de partir en vacances.*

***Mots-clés**. Petits ruminants – Durée de la journée – Continuité.*

I – Introduction

Small ruminants are an important source of employment in rural areas, either directly (farmer family) or indirectly (processing industry, feeding companies, veterinarians and rural tourism). In addition, its location, generally, in rural areas with a high degree of depopulation, it is a strong raison to maintain this strategic sector.

To keep the small ruminant sector, the continuity of the holdings should be insured. Multiple factors affect this continuity: market conditions, availability of land, application of new technologies (Pirisi *et al*., 2007, Ruiz *et al*. 2009a; Buerkert and Schlecht. 2009) and those related to labour which play an important role. The workforce must not only be taken into account as another production factor, there are aspects that are intrinsic to this concept, and interrelated: the workload, training, working conditions, efficiency, availability, etc. They must be

analysed to assess their overall situation. The continuity of holdings, due to the lack of generational replacement, is a serious problem in both developed and developing countries. The absence of young people interested in livestock is a risk that threatens farms as currently known.

Traditionally, goat activity has been located in the poorest areas of the Mediterranean. There are many social implications that have affected this sector; in this sense, goatherd or shepherd is one of the occupations less valued by society. Nevertheless, today this concept is changing, the product quality, the environmental role of livestock, the promotion by the government, etc., are making that the image of the farmer is identified with a number of positive externalities, which are demanded by the population.

Another important aspect in recent years is the loss of profitability of farms (Castel *et al*., 2010a) which can determine the future of Spanish goat farms in the short term.

In previous studies (Mena *et al*., 2005; Castel *et al*., 2010b), authors have discussed some aspects related to goat farm labor, but not exhaustively. Thus due to lack of information available and the importance for the future of farms, it was considered further in presentation. The main aim of this study is to characterize all aspects related to labor in Andalusian goat farms (Spain). From these results, strategies to optimize labor in goat farms are proposed.

II – Materials and methods

75 andalusian goat farmers were interviewed. The survey contain 58 items grouped into 8 categories: (i) Socio-economic characterization of the farmer; (ii) Characterization of the livestock system; (iii) Education and training; (iv) Quantification of labor and working conditions; (v) Availability labor; (vi) Multifunctionality; (vii) Continuity; and (viii) Current problems. The surveys were conducted between June and September 2010, in different Andalusian goat areas.

A descriptive statistical analysis has been made. From results, different strategies have been developed to facilitate the working conditions of goat farmers.

III – Results and discussion

1. Characterization of the system

The average age of farms is 27 years (± 15.3 years). The farmer's age is a limiting factor for the improvement of farm management and optimization of the facilities. The average age of the farmer, is 44 years (± 10.8 years). Recently, in Andalusia many young people have joined this activity (Castel *et al*., 2010b). Experience of farmers is around 17.5 years (± 10.3 years).

Most of farms are family farms (98.7%). Of these, 55% are managed by more than one member of the family and the rest are singles. The number of family farms has fallen in Andalusia from 77% (Mena *et al*., 2005) to 55%. In many cases, farmers use community land but they don't have been taken into account in this study. The property is the best option as it enables farmers raised to make investments to improve the farm.

Average size of herd is 352 animals (± 267.5), mainly dedicated to milk production. Milk production orientation is predominant in Spanish goat systems (Castel *et al*., 2010b). Animals graze throughout the year in the 52% of cases and graze only seasonality in the 34.7%. All milking goats receive concentrate daily. Milk production is more than 300 litres per goat per year (Table 1).

Table 1. Main technical characteristics of farms analyzed in this study

Indicators		
Farms		75
Herd size†		352 (± 267.5)
Goats		281 (± 201)
Replacement rate (%)		25.1 (± 13.5)
Main production (%)	Milk	92.0
	Milk and cheese	2.7
	Meat	5.3
Type of system (%)	Continuous grazing	52.0
	Seasonal grazing	34.7
	Intensive	13.3
Concentrate (kg per goat per day) ††	Maximum	1.37 (± 0.58)
	Minimum	0.62 (± 0.33)
Milk production (l per goat per year)		328.6 (± 151.9)

†Male, goat present and replacement.
††Only milking goats.

2. Multifunctionality

38.8% of farmers have another activity direct or indirectly related to the agriculture (sheep, olive, hunting, etc.). Among the other livestock activities, sheep are the most important (22.2%), followed by suckling cows (6.6%). Respect to the agriculture olive is the most common (17%), followed by fruit and crops.

In reference to non-agricultural activities, hunting is the most important one, 16% of the farms carry out this activity. Rural tourism or direct selling consumer products are practically zero.

There is an interest from farmers for cheese making, as the French models ("fermier" cheese). This initiative is supported by 74.6% of respondents.

3. Labor goat activity

There are 1.7 persons working in the holding (± 0.8). The data is similar to that reported by Mena *et al*. (2005) (1.8 persons), but it is greater than provided by Bossis *et al*. (2008) for French goat farming systems (1.5 people). The workforce is familiar as in most goat systems in the Mediterranean basin (Ruiz *et al*., 2009b).

The workload is 175 goats/worker (± 95.8). This number is greater than the 152 goats/worker calculated in French systems (Bossis *et al*., 2008), the 137 goats/person in Andalusian pastoral systems (Mena *et al*., 2009) and the 134 goats in Andalusian intensive systems (Sanchez *et al*., 2006), showing an increase in workload in recent years.

The workday length varies throughout the year. The parturition period and the months with higher milk production are the most complicated. These periods coincide with the autumn and early winter. In contrast, in summer (months with very low milk production) the workday is lower. According to farmers surveyed, during the period of greatest work the duration of the working day is 11.5 hours/day and 8.5 hours per day when work is less. According to Mena *et al*. (2005) the average length of the workday on goat farms in Andalusia was 9.5 hours.

Table 2 shows the daily dedication to each tasks performed by the farmer. In grazing systems most of the time is devoted to direct grazing (5.9 hours/day) and milking (2.5 hours/day). In indoor systems, the milking is the task with the greatest number of hours, among other reasons

because the herds are larger. The daily average of pastoral systems is 11.1 hours per day and indoor systems of 7.1 hours per day.

Table 2. Daily dedication to each tasks performed by the farmer in grazing and indoor systems

	Grazing†	Indoor
Goats present (nº)	282 (±183)	378 (±268)
Milking (h/day)	2.5 (±0.8)	3.2 (±1.5)
Cleaning (h/day)	0.9 (±0.5)	1.5 (±0.6)
Feeding distribution (h/day)	1.4 (±0.8)	1.3 (±0.6)
Grazing (h/day)	5.9 (±2.5)	0.0 (±0.0)
Other tasks (h/day)	0.4 (±0.7)	1.1 (±1.8)
TOTAL	11.1 hours	7.1 hours

†Continuous grazing + Seasonal grazing.

It is possible to reduce the workload on the farm through of innovations and little modifications. The 89.3% of farms have mechanized milking, which is widespread use in most Andalusian goat farms. Milk is collected by industries on the farm in 92% of cases; farmers previously had to carry the milk to collective collection points. Much cases (93.3%), feed (forage and concentrate) is supplied directly by feeding companies. 30.6% of farmers have a shelter place to store the concentrate and only 4% of farmers have automatic systems of feed distribution. More than half have mechanical means in the farm (54.7%).

One of the most problematic aspects of livestock farming is the lack of rest periods or vacations. Only 4% of farmers have a day off at week, increasing to 12% the number of farmers who have a holiday period of 7 days per year on average.

Farmers think that to find a person trained to make substitutions is difficult (37.3%) or very difficult (25.3%). For those farmers who don't have hired person, his children or wife (or husband) make the work when they have to go out.

The necessity to have someone to make substitutions on the farm is important for 97.3% of farmers. In Andalusia there have economical support to solve this problem. Aids are intended to finance the hiring of a surrogate to the farmer, so they can have rest days throughout the year. Only 18.6% of farmers know this type of aid, but 88.0% were willing to apply, however, demand this type of aid is almost zero. Among conditions that should meet this person in opinion of farmers are: (i) to have training in livestock activity (64%); (ii) to have made a traineeship on the farm (45.8%); (iii) to have knowledge of livestock activities (37.5%); and (iv) being a farmer (33.3%).

4. Livestock training

Training is basic to any activity, due to the innovations that appear in all fields. In general, goat farmer has very little training. Only 48% of farmers surveyed have done some training over the past two years. Among the reasons given for not training are: (i) lack of time (69.0%); (ii) lack of a person to replace (33.3%); and (iii) not knowing about where there are training (15.4%).

Farmers demand training about: (i) milk quality (44%), (ii) feeding management (42.7%), (iii) technical-economic management (32%), and (iv) animal health (32%).

5. Farm continuity

Despite all these conditions described former, 79% of farmers are satisfied or very satisfied with their activity. They are farmers caused: it exist a family tradition like farmer (60%) and they like their activity (57.3%).

Due to the economic situation (a significant drop in the profitability of farming have occurred in recent years), the main problem identified by farmers is the low price of milk and kids. 98.6% of farmers are dissatisfied with the amount of their income.

Despite this situation, 54.7% of farmers said that they will continue with their activity to the long-term, and 36% in the medium-short term. However, only 7.5% of 45 years old farmers have a person interested in continuing with the goat activity. The support that should get the person who initiates the activity goats would be: (i) advisory assistance request aid (69%), (ii) installation financial aid (68%), and (iii) technical (56%) and economic assistance (42.7%).

6. Problems identified and solutions

The main problems identified in relation to labor in Andalusian goat farms are: the length of working hours, the lack of rest periods and the lack of training and generational change, the latter as a result of the previous three.

There are possibilities to reduce the length of the workday. In the case of pastoral systems, most of the time is devoted to graze animals. As pointed out by Ruiz *et al*. (2008) in many cases the quantity of pastures is low, so it makes no sense grazing, especially in summer. Currently some research group is working on GPS as a tool for monitoring animal. The GPS can reduce the time spent by the farmer into this task. The mechanization of feed distribution is another aspect that reduces the work time on the farm, preventing efforts. Another aspect that should be improved is the time of milking, which could be shorter. Related to this, many farmers distribute concentrate manually while milking. If the distribution of feed was mechanized, the milking time would be reduced.

The absence of rest periods for farmers is a serious problem that must be solved. Farms wich farmers have rest periods are: family holdings, where father and son or two brothers work together or farms with hired personnel. These types of farmers have to be encouraged. Other option is to have a hired person by a group of farmers. Farmers are interested in this figure and also in aids for that. The confidence of the farmer would have to get through previous periods in the farms.

Farmers received very few training. One-day workshops, with a very specific theme, and adapted to the schedule of farmers, could be a strategy to increase training of farmers. Internet can also be used for distance learning in most rural areas of Andalusia where is possible to access to internet.

As mentioned before, the lack of generational replacement is due in part to these problems, together with the low profitability of goat farming. Improving working conditions, the monetary recognition of environmental activities carried out by shepherds, the enhancement of product through on-farm processing, the associations among farmers and the pursuit of short marketing channels, would be more profitable pastoral farms.

IV – Conclusions

Continuity of Andalusia goat farms is not assured as a result of a lack of generational replacement. Working conditions and lack of rest periods make goat farm an unattractive activity for young people. Family farm present more advantages in this sense, therefore such systems should be promoted.

Training of farmers is insufficient because they have not time and there are not enough courses. It is necessary to increase e-learning, offering more specialized training. Application of new technologies that facilitate the management of the farm is another strategy to drive (for example use GPS).

Despite the harsh working conditions, a high percentage of farmers enjoy their activity and intended to continue at medium-term with the farm. It is necessary to improve the working conditions of goat farmers as well as the economic margins which can provide a decent life to farmers. Both are crucial to ensure continuity of farms.

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