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Description of Palmera sheep production system

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Abstract. 78.5% of Palmera sheep flocks registered in the official herd book, were surveyed according to different aspects: composition of flock, feeding management, productive and reproductive parameters and economic indicators. The average flock size (21.0 ± 20.0 sheep) was small and with a high variability (CV 0.95). Farmers were not too young (50.5 ± 17.3) and sheep were not their principal activity (only 0.83 ± 0.51 familiar UTA). Grazing was the most extended practice; nine of the eleven farms surveyed used natural pastures and forest for direct sheep grazing. Average percentages of fertility and fecundity were $97.9\% \pm 3.10$ (CV 0.03) and $127.4\% \pm 28.8$ (CV 0.22) respectively; percentage of lamb mortality was $8.6\% \pm 7.20$ (CV 0.83). Principal income was local subsidy and not lamb meat. Under these conditions, recovery of Palmera sheep is based in the good adaptation of the breed to the local conditions, an efficient use of natural resources, a right subsidy policy and a getting on with the measures aimed at promoting lamb meat.

Keywords. Local sheep breeds – Composition of flocks – Technical-economic indicators.

Description du système de production des ovins Palmera

Résumé. 78,5% des troupeaux de moutons Palmera enregistrés dans le livre officiel ont été étudiés en fonction de différents aspects: composition des troupeaux, gestion de l'alimentation, production, reproduction et indicateurs économiques. La taille moyenne du troupeau ($21,0 \pm 20,0$ moutons) était faible et avec une forte variabilité (CV 0,95). Les éleveurs ne sont pas très jeunes ($50,5 \pm 17,3$ ans) et l'élevage ovin n'est pas leur activité principale (seulement $0,83 \pm 0,51$ UTA familiale). Le pâturage est la pratique plus étendue ; neuf des onze exploitations enquêtées utilisent les prairies naturelles et des forêts directement pour le pâturage des moutons. Les pourcentages moyens de fertilité et de fécondité ont été de $97,9\% \pm 3,10$ (CV 0,03) et $127,4\% \pm 28,8$ (CV 0,22), respectivement ; le pourcentage de mortalité des agneaux a été de $8,6\% \pm 7,20$ (CV 0,83). Le principal revenu a été la subvention locale et non la viande d'agneau. Dans de telles conditions, l'entretien des moutons Palmera est basé sur la bonne adaptation de la race à la situation locale, une utilisation efficace des ressources naturelles, une bonne politique de subvention et de promotion de la viande d'agneau.

Mots-clés. Moutons de races locales – Composition des troupeaux – Indicateurs technico-économiques.

I – Introduction

The Palmera breed is one of the three autochthonous sheep breeds from the Canary Islands. With only 224 animals (9 rams and 205 ewes) registered in the herd book, the Palmera breed is greatly endangered to risk of extinction.

The objective of this paper was to make a description of the Palmera sheep production system and give recommendations for a breed conservation policy.

II – Material and methods

Surveys were carried out from June to August 2007 in eleven of the fourteen Palmera sheep flocks registered in the official herd book of this breed. All farms were located in La Palma Island, where the genetic resources of this breed are from.

The survey recorded different aspects: (i) composition of flock; (ii) feeding management; (iii) productive and reproductive parameters; and (iv) economic indicators. The methodology of FAO-CIHEAM group (Toussaint, 2002) related to the technical and economic analysis of small ruminant farms was used to design the surveys. Descriptive statistics were done with Microsoft Excel spreadsheet.

III – Results and discussion

In Table 1 are the descriptive statistics of Palmera sheep farms. When a breed is in risk of extinction, economical rental seems not to be the first of the farmers aims. Farming was not the main activity for nine of the eleven surveyed farmers (84.6%). This was reflected in a low workforce per year unit (WPYU) value. In farms with family workforce and with salaried workforce the average WPYU values were 0.83 ± 0.51 (CV 0.61) and 0.75 ± 0.35 (CV 0.46) respectively. These WPYU values were lower than those found by Navarro *et al.* (2007) in Segureña sheep.

Three flocks were associated to Palmera goat flocks, being the goat production the main economic activity, and other two flocks were associated to banana orchard as a main economic activity. Three farmers were retired and five work in governmental administration. Farmer age average was 50.5 ± 17.3 years old (CV 0.34), with extremes from 29 to 77 years old. Palmera sheep farmers were older than other farmers living in La Palma Island (Escuder *et al.*, 2006) and older than other sheep farmers living in different regions of Spain (Lara *et al.*, 2006; Salcedo and García-Trujillo, 2006).

Table 1. Palmera sheep farms descriptive statistics

Parameter	X ± sd†	VC‡	Minimum	Maximum
Family UTA	0.83 ± 0.51	0.61	0.25	1.00
Salaried UTA	0.75 ± 0.35	0.46	0.50	1.00
Farmers age (years old)	50.5 ± 17.3	0.34	29	77
Size flock (sheep)	21.0 ± 19.96	0.95	5	67
Ram/flock	1.88 ± 1.60	0.85	0	6
Ewe/flock	16.6 ± 8.40	0.50	4	58
Fertility (%)	97.9 ± 3.10	0.03	93.8	100.0
Fecundity (%)	127.4 ± 28.8	0.22	95.8	166.8
Net margin/ewe (€)	95.1 ± 61.3	0.65	- 52.1	416
Net margin without subsidy/ewes (€)	9.24 ± 7.94	0.86	-135.0	242

†X ± sd: average and standart deviation.

‡VC: Variation coefficient (%).

Most farms were located in the northwest and central areas of La Palma Island. Concretely, five farms (45.4%) were in the Garafia area. This situation can be explained by the influence of the Local Breed Conservation farm located here and the most important tradition of sheep breeding in this area. Northwest and central location is favorable to the use of the forage resources (53.9% of farms area were forest and natural pastures). This use of natural resources was associated to a bigger extension of farms in this region (from 4 to 32 ha) and constituted 96.7% of sheep diet. On the other hand, two farms (associated to banana plantations) based sheep feed in concentrate supplies (75.0% of total nutritional requirements) and used sub-products of banana harvest as forage. Grazing is a regular practice in the north of La Palma city (Capote *et al.*, 1992; Escuder *et al.*, 2006), and Palmera sheep seem to be well adapted to this kind of management.

As a breed in risk of extinction having a small census, this situation was reflected in the small average size of the flocks (21.0 ± 20.0 sheep). Rams and ewes per flock were 1.88 ± 1.60 and

16.64±8.40 respectively; both with a great variability reflected in their high (0.85 and 0.50 respectively) variation coefficient (CV). The bigger CV on number of ram per flock was a consequence of the limited available number of rams in the Palmera sheep breed; so two farms didn't have any rams. In the last three years, nine of the eleven farmers surveyed increased the number of sheep in their farms; the other two started to rear Palmera sheep last year and they want to increase their flocks too.

Analyzing reproductive performance in these farms, average values of percentages of fertility and fecundity were 97.9%±3.10 (CV 0.03) and 127.4%±28.80 (CV 0.22) respectively. These values were similar to percentage reported in Castellana breed with semi-extensive management (Núñez and Moyano, 2006) or in traditional sheep flock in the north of Granada (Salcedo and García Trujillo, 2006).

Average percentage of lamb mortality was 8.61%±7.20 (CV 0.83). With a limited number of sheep used as parents it seems to be rare not to find an inbreeding depression effect. That could be explained with the introduction of two new rams not related with the others.

All farmers slaughtered their lambs at four months of age and usually sold or consumed them. Market price is 7 to 8 euros per carcass kg. Only two farmers had incomes from flock's dung sales.

When economic indicators were studied, only two farms had a negative net margin/ewe values. Average for this indicator was 95.1±62.2€ (CV 0.65); with a minimum value of -2450 € and a maximum of 9694.5 €. But if we take net margin without subsidies/ewe, five of the eleven farms surveyed had negative values. The variability found in net margin/ewe (CV 0.65) was explained by differences in feeding costs (grazing vs concentrate consume), number of ewes (with a larger number of ewes there are more lambs for sale), incomes for meat lamb (some farmers didn't sell their lambs), and incomes for dung (it is much appreciated as fertilizer). Average net margin without subsidies per ewe fell to 9.24±7.94 €. The fact that all farmers didn't receive the same subsidies, explained the bigger coefficient of variability (0.86) found in net margin without subsidies/ewe.

IV – Conclusions

Although subsidies have had a good effect in the process of the recovery of the breed, other measures aimed at promoting lamb meat in ecological production systems could have an important impact in the actual profitability of the production.

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