Feeding strategies and main expenses in sheep breeding in mountainous area of Tizi-Ouzou, Algeria

Mouhous A., Chibane F., Segheir S., Brabez F., Kadi S.A.

in

Baumont R. (ed.), Carrère P. (ed.), Jouven M. (ed.), Lombardi G. (ed.), López-Francos A. (ed.), Martin B. (ed.), Peeters A. (ed.), Porqueddu C. (ed.).
Forage resources and ecosystem services provided by Mountain and Mediterranean grasslands and rangelands

Zaragoza : CIHEAM / INRA / FAO / VetAgro Sup Clermont-Ferrand / Montpellier SupAgro
Options Méditerranéennes : Série A. Séminaires Méditerranéens; n. 109

2014
pages 713-716

Feeding strategies and main expenses in sheep breeding in mountainous area of Tizi-Ouzou, Algeria

A. Mouhous[1,*], F. Chibane[1], S. Segheir[1], F. Brabez[2] and S.A. Kadi[1]

[1]Faculté des Sciences Biologiques et Sciences Agronomiques
Université Mouloud MAMMERI de Tizi-Ouzou (Algeria)
[2]Ecole Nationale Supérieure Agronomique, ENSA, El Harrach, Alger (Algeria)
*e-mail: mouhousazeddine@yahoo.fr

Abstract. With the aim to identify the feeding strategies of sheep breeders in relation with expenses of sheep and the role of pasture in the feeding of the herd, a regular follow-up of 16 sheep farms in mountain area of Tizi-Ouzou (Algeria) was adopted during one year. The first results show that these strategies are related to climate and to period of strong complementation such as the complementation in periods of lambing or fattening in order to sale. For 37% of the farmers, sheep breeding is considered as the main activity of which herd size varies from 7 to 75 heads. The average time spent by animals in pasture is 6 hours/day. The Rangelands and natural grasslands are used throughout the year. The animals receive an average of 54 g/head/day of feed complement. The complement is often wheat bran, concentrates, corn and barley. For this purpose, the feed cost reaches 240 DA[1]/head/month; this represents 24% of total operating expenses. The use of mountain pasture seems secure sustainability strategies adopted by farmers.

Keywords. Pastures – Food strategies – Operating expenses – Mountain area – Mediterranean – Sheep.

Stratégies d'alimentation et principales dépenses dans les élevages ovins en zone montagneuse de Tizi-Ouzou (Algérie)

Résumé. *16 exploitations ovines situées en zones de montagne de Tizi-Ouzou (Kabylie) ont été suivies pendant une année. L'objectif était d'identifier les stratégies d'alimentation des éleveurs ovins en relation avec les dépenses des ovins, et la place des pâturages dans cette alimentation. Les résultats montrent que ces stratégies sont liées au climat et aux périodes de forte complémentation comme celles des périodes d'agnelage ou de l'engraissement en vue d'une vente. Pour 37% des éleveurs l'élevage ovin, dont la taille des cheptels varie de 7 à 75 têtes, est considéré comme activité principale. Le temps moyen passé par les animaux sur les pâturages est de 6 heures/jour. Les parcours et les prairies naturelles sont utilisés durant toute l'année. Les animaux reçoivent en moyenne 54 g/tête/jour de complément. Ce dernier se constitue souvent de son, de concentré, de maïs et d'orge. A cet effet, le coût alimentaire atteint 240 DA/tête/mois soit 24% des dépenses totales de l'exploitation.*

Mots-clés. *Pâturages – Stratégies d'alimentation – Dépenses de l'exploitation – Méditeranéen – Ovins.*

I – Introduction

In the mountainous area of Tizi-Ouzou (Algeria), sheep farming presents some particularities due to the topography of this region and the availability of the means of production in the farms. The study area covers a surface of 2976 km² with a human density of 400 hab/km² (http://www.tiziouzou-dz.com/). It consists of five distinct physical homogeneous groups, including mountainous area

[1] DA : Dinar Algérien.

which culminates at more than 700 m, representing 52% of the total area study.The size of the ovine livestock is about 184,101 heads (DSA, 2011). The extensive system is used in mountain pastures in order to reduce feed costs. In these conditions, what are the feeding strategies related to the use of pasture and feed complement? What are the costs inherent to these strategies? This study aims to answer to those questions.

II – Methodology of conducting the survey

Sixteen farms were followed in the mountainous region of Tizi-Ouzou during 12 months (from March 2012 to February 2013). The choice of the breeders was based on their agreement to participate to this survey. Monthly visits to farms were planned and a survey questionnaire was completed after an interview with the breeders. The questionnaire items are mainly related to herd feeding. Variables concerning the use of mountain pastures and distribution of feed complement are the only ones presented in this paper.

III – Results and Discussion

The sizes of the ovine herds are not important in this study area. They vary from 7 to 75 heads per herd with an average of 32 heads/herd. In 37% of the exploitations the ovine raising represents the main activity. While for the majority (63%) it's a secondary activity. In some African countries, these small ruminants contributed considerably to cash income (Legesse *et al.* 2010).

The forage calendar (Fig. 1) shows how animal feed is diversified during the year. The feeding of sheep in this mountainous region is mainly based on pastures which are forest grazing and natural grasslands. Their use is daily and throughout the year. The same situation was reported in Portugal by Pacheco (2002).

Feed complement and pastures (natural grassland and forest grazing) are used throughout the year, while the hay is used from September to March with the derisory quantities. In mountain areas, the surfaces devoted to the fodder crops are very low, so the forage on offer is insignificant. The use of stubble is limited to 4 months (from Jun to September)(from July to September).

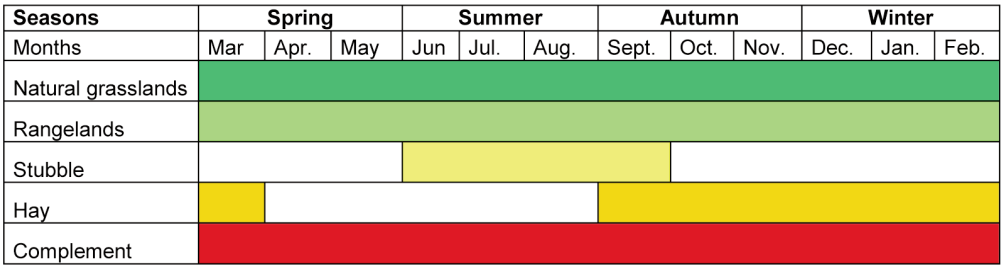

Fig. 1. Forage calendar used in ovine exploitation in the study area.

Furthermore, animal feed ration is complemented by an average of 54 g/head/day. This quantity increases to 200 g/head/day during the fattening period, the lambing and winter season (September-February). The same situation is reported in Morocco by Ibn El Bachyr and Mounsef (2011). The complement used was constituted of a mixture of wheat bran, barley and commercial concentrate for cattle. The proportions of these complements are different according to the breeder and period.

According to the level of complementation, breeders followed were grouped into three distinct groups (Table 1). The first group of farmers does not use complement. The average herd size is 38 ± 29 head/farm, and sheepwere fed exclusively on pasture. Animals spend more time on pastures (average 7 hours/day).

Table 1. Feeding characteristics and expenditure structure

	Group 1	Group 2	Group 3
Head size and feeding characteristics			
Heard size (head)	38 (± 29)	40 (± 23)	15 (± 9)
amount of feed distributed (g/head/day)	0	26 (± 8)	81 (± 22)
grazing time (hour/day)	7 (± 1)	6 (± 1)	4 (± 1)
Average expenditure(DA/head/month)			
Labour cost	73 (± 73)	32 (± 45)	134 (± 271)
Animal purchase	159 (± 138)	443 (± 491)	1336 (± 1785)
Feedcost	96 (± 69)	147 (± 94)	476 (± 228)
Healthcost	1 (± 1)	7 (± 5)	19 (± 8)
Total cost	330 (± 203)	629 (± 549)	1966 (± 1961)

The second group whose average herd size is a little higher (40 ± 23 heads/exploitation) distributes few complement (26 g/head/day), and animals spend on average 6 hours/day on pastures. The third group, had the smallest herd size (15 ± 9) and the animals received more than 80 g/head/day of feed complement and spend less time on pasture (5 hours)compared to the other groups.

There is a strong negative correlation (- 0.7)between these two parameters (Fig. 2). These strategies are implemented to reduce the costs involved to the feeding.

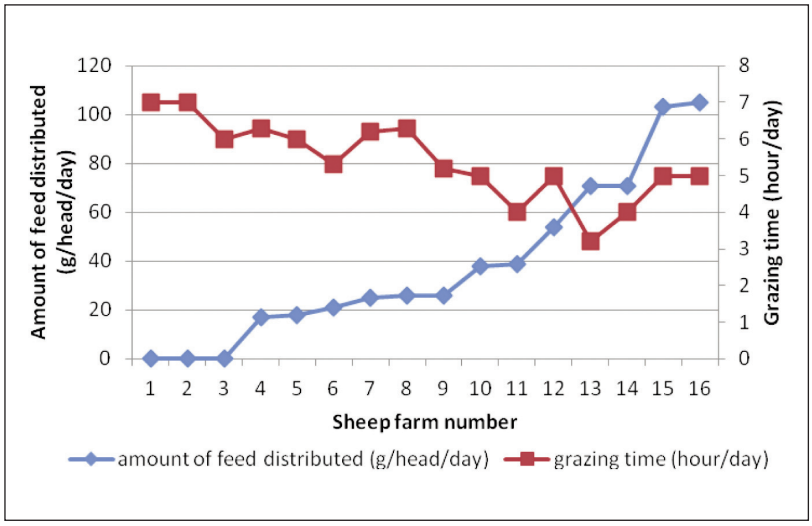

Fig. 2. Amount of feed distributed and grazing time in the sheep farms studied.

The different spending strategies for the three different groups of farmers are summarized in Table 1. Globally, the average of total spending on sheep amounted to 990.00 DA/head/ month (€ 9.64 / head / month). Contrarily to that find in Spain by Perez et al. (2007), feed in our region represents only 24% of total expenses. The post of animals purchasing is the most important and represents 68% of total out-farm expenses. Conversely, structural expenses related to the manpower represent only 7% of total expenses. This charge is lower compared to that reported by Tchakerian *et al.* (2001) in French meat sheep farms which are nearly 15%.

The group 1 had the lowest cost. Except for manpower, it ranked in second position. Two farmers used a temporary workforce for forage harvesting. This group spent less but purchased less animals. Low feed cost (for hay) explained the high use of pastures. The group's strategy was to minimize the costs to the detriment of the shortfall in sales animals without fattening. These breeders have a very weak dependence overlooked the feed market.

The group (the largest in number of animals) distributes small amounts of feed complement and also recorded low feed costs (146.5 DA/head/month). Feed costs are similar to those of the first group. We denote the lowest workforce cost. Workforce is essentially family even for forage harvesting. The group's strategy is to use in addition to pasture, the distribution of feed complements (concentrate mixture for the cattle, barley, wheat bran and sometimes corn) with small quantities. The goal is to have animals with a good weight at marketing.

The third group records the most important costs even with low numbers of livestock. Feed costs are 476 DA/head/month that are the largest among the three groups. The strategy of these breeders is to increase the feed from the pasture by a distribution of feed complement that may average 81 g/head/day. It is a business strategy that dictates them to spend more to have fattened animals for sale. Farmers of this group buy monthly animals to fatten them and then return them to the market. They are more contractors than other groups.

IV – Conclusion

The mountain pastures which are essentially forest grazing and natural grasslands are the main source of feed for sheep raised in such regions. Sheep farms with small heard size use these pastures daily and throughout the year. Some breeders distribute a supplement at a low level. According to the use of feed supplement, three strategies driving feed emerge. Farmers who use the first strategy does not distribute complement, they are not related to the market. Breeders who use the second strategy distribute low amounts of complement. Link of these farmers with the market is average. Finally breeders who use the third strategy are part of a marketing strategy by improving animal rations by complement.

References

DSA (Direction des Services Agricoles), 2011. Effectifs des animaux gros bétails : Ovin. Statistiques agricoles. Wilaya de Tizi-Ouzou. Compagne : 2010/2011. http://www.tiziouzou-dz.com/: official web site of Wilaya of Tizi-Ouzou.

Ibn El Bachyr M. and Mounsif M., 2011. Fragilité des modes de conduite des troupeaux de petits ruminants en zones de montagne. Cas du bassin versant de l'Oued Lakhdar (Maroc).Zaragoza, CIHEAM/FAO/CITA-DGA. *Options Méditerranéennes, Série A,* 100, p.157-161.

Legesse G., Siegmund-Schultze M., Abebe G. and Valle Zarate A., 2010. Economic performance of small ruminants in mixed-farming systems of Southern Ethiopia. *Trop Anim Health Prod*. 42, p. 1531-1539.

Pacheco F., 2002. Des systèmes caprins et ovins traditionnels en crise : une menace pour les zones de montagnes de la région d'entre douro Minho au Portugal. *Options Méditerranéennes, Série A,* 70, p. 193-201.

Perez J.P., Gil J.M. anf Sierra I., 2007. Technical efficiency of meat sheep production systems in Spain. *Small Rumin Res.*, 69, p. 237-241.

Tchakerian E., Bellet V. and Chauvat S., 2011. Les charges de structure en ovin viande : variabilité et marges de manœuvre. *Renc. Rech. Ruminants*, 18, p. 289-292.