

Sheep husbandry systems involved in the “calcareous grasslands” agri-environmental schemes in the Luberon (France): land use and market segmentation of products

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Summary

In the Luberon area (southern France), an EU agri-environmental programme is supporting the re-opening of overgrown pasture through sheep husbandry. Our study is based on farmer, consumer and market surveys. It aims to identify the diversity of the sheep farms involved, the consequences of involvement and the capacity of the market to recognise and give more value to a specific product coming from this type of husbandry.

Different types of farms with sheep are considered, according to their structure, flock management and land use. Over the last decades, some farmers have increased the use of cultivated areas, while some new settlers mainly deal with rangeland. They market different types of lamb, similar to those of non-LFA systems. Extra costs of commitment to the agri-environmental schemes are not covered by the market, but through public payments. This underlines the importance of the new CAP, particularly those measures promoting innovative integrated development.

Introduction

Over the last few years, agri-environmental schemes have been implemented in many French regions. The aim of these European schemes is to encourage farmers to develop or maintain practices that respect the environment, and they are accompanied by financial incentives. In south-eastern France, the objective of many of these schemes is to encourage pastoral redeployment with a view to preserving open environments and maintaining the biodiversity and/or quality of the landscapes. These measures are supposed to reverse the tendency observed during the period of “agricultural modernisation” when the contribution of the rangelands continually decreased. In the agri-environmental scheme implemented in the Natural Regional Park of the Luberon (PNRL) in 1996, the objective is most specifically to maintain, and eventually develop the calcareous rangelands through grazing. Within the context of this scheme, some farmers voluntarily accepted to graze their flocks on different parcels, thus having a strong impact on the grass layer (pre-defined stocking rate). As an incentive, a subsidy is granted to those farmers. The subsidy covers the extra costs of new flock management and grazing practices aimed at improved grassland and woodland management.

Livestock husbandry in the LFAs can produce specific products, different from standard commodities. Quality products are seen as an alternative way for an improved income in LFAs, thus maintaining livestock agriculture in these zones.

Are these two ways of maintaining animal agriculture in LFAs complementary? In the study zone, subsidies cover the extra costs of environmentally friendly animal husbandry. Can the market for specific products cover a part of these costs, through the higher price of lamb? This paper is an attempt to answer this question, on the basis of current studies made within an EC funded research programme (EQU LFA), on marketing channels (Boutonnet, 1999), sheep farm diversity (Ponchelet, 1999), pastoral land use (Léouffre & Lasseur, 1999) and livestock management (Lasseur & Léouffre, 1999) in the Luberon area.

Methodology

Diversity of sheep husbandry systems

The last available general statistical data are found in the agricultural census of 1988 (S.C.E.E.S, 1989). A special processing of the crude data was made on all the “communes” of the Luberon region. All the farms with sheep were characterised and classified according Technical-Economic Orientation (TEO) and characterised by livestock numbers, land tenure, and grazed area.

The contracted farms

Twenty-three sheep farmers are involved in the scheme. A survey of these farmers was conducted in the form of a semi-directive interview. During this interview the following points were covered:

- a) the characteristics of the farm, based on structural elements (size of the flock, land used [type and distribution in space], labour, facilities, etc.), characteristics of production (level of animal productivity desired, production season, type of lambs produced) and operating elements (method of managing reproduction, grazing management, etc.), and
- b) the description of the conditions of the establishment and the development of the farm by identifying the most significant changes to the structure and operation of the farm over the last twenty years, or since the establishment of the farm.

The analysis of the interviews was then used to characterise the diversity of the situations in the form of a typology (Capillon, 1993). This combined structural and operational elements, which enabled the identification of the types according to their principal characteristics in a form close to the “farming styles” described by Van der Ploug (1996).

Analysis of rangeland use

Choice of sample farms

Thirteen farmers (45% of all of the contracting farmers) were retained for the survey concerning the use of the grazed land. These 13 farmers represent 3 of the 4 types of farms previously identified on four neighbouring communes. These samples were constituted in a manner that would represent the greatest possible diversity in the types observed, whilst remaining in the same micro-regional context (communes in the same geographic sector).

Field survey

During the survey, the farmers first located their entire farming territory and the main facilities (fences, watering points, farmsteads, sheep housing, etc.) on aerial photographs (infra-red colour 1:13,000). Subsequently, a description of the grazing schedule for the first year of the contract enabled us to identify and localise the different grazings used. This allotment¹ appeared to be pertinent as it enabled an appreciation of the farmer's point of view concerning the ease of movement of animals (different batches of animals or the whole flock) taking into account the requirements for feeding and/or equipment (Hubert *et al.*, 1993).

In the last phase of the interview, the locations of the parcels under contract, which we had previously established, were compared with those of the allotments established by the farmer. This comparison enabled us, on the one hand, to evaluate the place given to the parcels under contract by the farmer, and on the other hand, to identify the shepherding practices which the farmer may have implemented.

Marketing channels

All relevant available statistical sources were used: controlled slaughtering, agricultural census, consumer surveys and population census. The most important source is the survey of all the traders acting in the PNRL, intermediate between farmers and retailers: six sheep meat wholesalers, buying live sheep, and three livestock merchants. The main wholesalers buying live sheep in the two departments of Alpes de Haute Provence and Vaucluse and "resource persons" were also interviewed. These were five sheep farmers representative of the diversity of sheep breeders of the PNRL, the managers of the two producers groups acting in the AHP+V departments, representing 250 sheep farmers with 50,000 lambs/year, government statistical offices (livestock numbers, controlled slaughtering, farmers numbers, etc.) and six persons specialising in sheep advisory services acting in the PNRL, the managers of the five slaughterhouses existing in AHP+V, nine sheep meat wholesalers buying live sheep in AHP+V, of which the 6 are buying live sheep in the PNRL, eight livestock merchants buying live sheep in the AHP+V, of which three were buying live sheep in the PNRL, three restaurants in the PNRL, nine butchers in the PNRL and four supermarkets.

The traders' interviews were aimed at obtaining some quantifiable information on their activity (where, when, how much,

what price, whom they sell lambs to and buy them from, live animals, carcass or cuts), and their expectations on specific distinctiveness.

Results

Diversity of farms with sheep in PNRL

Specialised sheep farms are those where more than two-thirds of the gross margin comes from sheep and goats. They represent only 45% of total sheep numbers of the Luberon. The rest of the sheep are kept in multi-purpose farms of various types (Figure 1).

Pastoral land is the main feeding resource for specialised sheep farms. Other farms with sheep use more cultivated grassland and crops for their flock. Specialised sheep farms are the main users of the Luberon pastoral area, so their grazing practices have a great effect on the landscape (Figure 1).

Specialised sheep farms are generally expanding. They need more land than they own, and thus rent a great part of the land they use. Other farmers with sheep use only the land they own (Figure 1).

Types of farms and rangeland use

As most of the rangeland in Luberon is used by specialised sheep farms, and all sheep farms with an agri-environmental contract are specialised sheep farms, we have focused our study on the 29 farms with a contract in the Luberon. We have distinguished 4 types whose main characteristics of farm structure and land use configuration are presented in Figure 2.

"Local pastoral farmers" have been established for a long time or have continued a family farm. The flocks do not exceed 600 ewes and have remained stable over the last fifteen years. The farmer often works the farm alone. The landholding situation is highly variable, parcels owned by the farmer alternate with parcels that are either leased or rented in precarious conditions. The products are essentially indoor-reared lamb and, in certain cases, some lambs fed outdoors.

These farmers want to bring their animals into the sheep house every evening and therefore graze them on rangelands which are not far from the farmstead. However, these rangelands are used all year round by the batch of animals that is not in production. On these farms, the flocks are kept by shepherds.

"Lamb producers" are also farmers of local origin. Their farms are organised around the search for high productivity based on feeding their flocks exclusively with cultivated fodder. The flock size is around 1,000 ewes. The work is done by two associates (father-son on a couple of farms with a legal status of an association). These farms are very well equipped (for the sequence of harvesting operations and sheep houses). They produce only indoor lambs (mainly heavy, possibly live light lambs) which are the result of cross-breeding. They have adopted a reproduction schedule aimed at benefiting from the greatest value of these lambs (lambing in the autumn, even in summer).

The flocks are managed on the rangelands only when these

¹ An allotment is defined as a geographic zone, grazed, starting from a single assembly point for the animals (sheep house or pen) during a given period, by a batch of animals (non-pregnant ewes, etc.) or by the entire flock.

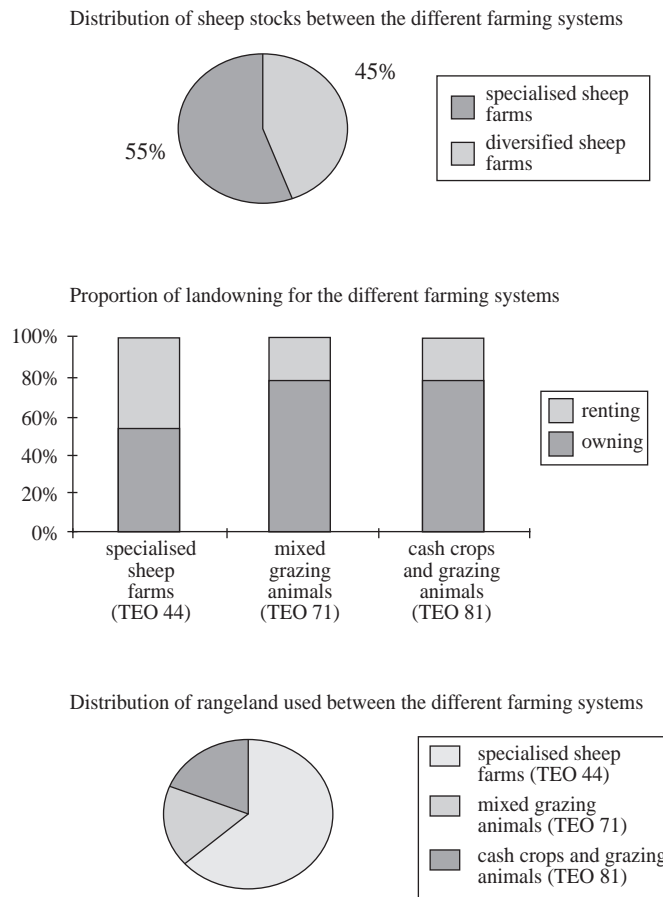


Figure 1. Sheep farming and farming systems.

FARMING STRUCTURE			
<p>LOCAL PASTORAL FARMERS</p> <ul style="list-style-type: none"> - around 600 ewes - local origin - 1 annual labour unit - fencing & shepherding - indoor lambs 	<p>PRODUCERS OF LAMBS</p> <ul style="list-style-type: none"> - around 1000 ewes - local origin - 2 annual labour units - fencing - indoor lambs 	<p>NEW FARMERS</p> <ul style="list-style-type: none"> - around 1000 ewes - outside origin - 2 annual labour units - fencing & shepherding - grass lambs & ewe lambs 	<p>JUGGLER FARMERS</p> <ul style="list-style-type: none"> - more than 1000 ewes - outside origin - employment of permanent shepherds - shepherding
<p> SHED CULTIVATED AREA RANGELAND </p>			

Figure 2. Diversity of sheep husbandry types.

are located close to the farmstead and cultivated areas, during very short periods in the year. Taking into account their production objectives, these farmers did not want to expose their animals to the uncertain feeding conditions of the rangelands, and thus only use them during periods where maximum intake is not necessary (e.g. after drying-off and outside the mating times) Thus, the flocks spend most of the year on the cultivated areas. When rangelands are used, they are systematically fenced.

“New farmers” do not come from the area where they have established their farms and often do not even come from agricultural backgrounds. They have developed, over the last ten to twenty years, a farming activity which enables them, on a minimal amount of land, to manage large flocks. As in the preceding case, the flocks consist of around 1,000 ewes. The number of sheep in the flocks has increased recently. The work on these farms is ensured by two associates (couples).

Unlike the preceding situation, high individual productivity of the animals is not the principal objective. The lambs produced are only grass-fed lambs, which are not used profitably in the “organised” sector.

Flock management is envisaged in a way that makes it possible to use the land that these farmers have been able to acquire (rangelands or seasonal renting of cultivated parcels or relay cropping). The parcels are widely scattered. The sheep sheds are only makeshift shelters and the flocks remain overnight for the greater part of the year in pens. In effect, these farmers possess only limited areas on their property, and have only limited cultivated areas. Thus, they cover an area depending in size on the rental opportunities that are available. As a result, the grazed rangelands are most often situated several kilometres from the farmstead. The animals graze there throughout the year, including the periods when they are in production. In effect, the feeding requirements for store lambs are compatible with the resources found on the rangelands.

Lastly, the “farmer-jugglers” are transhumant farmers who possess very large flocks (2,000 ewes or more) which have existed for a long time. They produce indoor lambs and grass-fed lambs. They were centred around cultivated areas and over the last few years have sought to reduce their production costs

by renting grazing on the hillsides. The presence of salaried shepherds on the farm and the large size of the flocks enables these farmers to divide their animals into different batches according to their physiological condition and thus to allocate the batches to the most appropriate areas. In this way, there are batches of animals that “can go to the hillside” throughout the year. The rangelands are traditionally used during periods when the flocks have low requirements or throughout the year by animals that are not in production. These are the farmers who are interested in the rangelands in the heart of the massif, on the condition that the areas proposed are vast. In effect, the batch of animals must be sufficiently large to justify the salary of the shepherd during the grazing period. Moreover, this period must be sufficiently long to compensate for the inconveniences caused in constituting the batch and in the transportation costs.

The type of farm, the distance of the parcels from the farmstead and/or the period of the year, therefore, represent a greater or lesser constraint, and thus have more or less influence on the use of the rangelands (Léouffre & Lasseur, 1999). We can thus represent, in the form of a qualitative gradient, the capacity for each type of farm to use the rangelands in time and space (Figure 3).

Although we can see that in order to reach a certain level of impact on the vegetation, it is necessary for the parcels of rangeland under contract to be grazed during several periods of the year or during a particular period. This type of adjustment would not be possible for the lamb producer without major repercussions on their production management.

Marketing channels

The PNRL has good access to the Provence market, where 25,000 of the 30,000 lambs produced are sold to nine traders (livestock merchants and wholesalers), who in total market more than 500,000 lambs per year. Provence wholesalers sell 65,000 PNRL lambs per year to retailers, or 84% of their purchases, and 73% of total PNRL lamb consumption (Figure 4).

With 30,000 head produced and 89,000 consumed, PNRL represents only 12% of Provence lamb production and 3% of Provence lamb consumption. In the two departments of

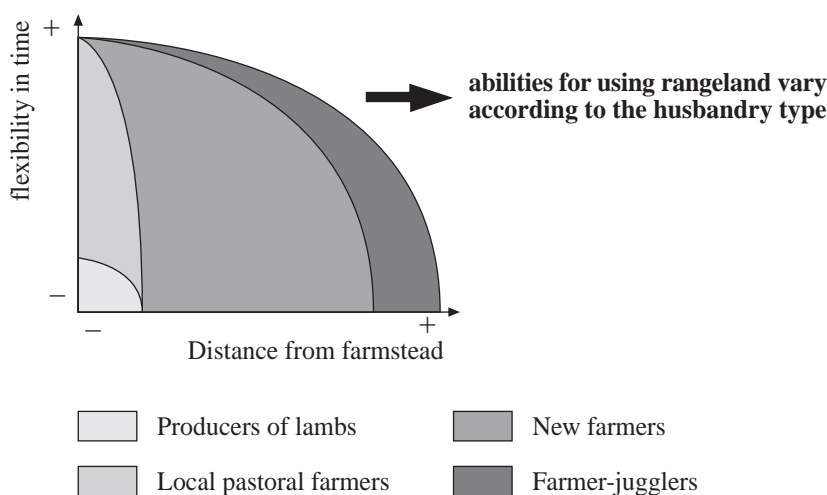


Figure 3. Use of rangeland according to the husbandry type.

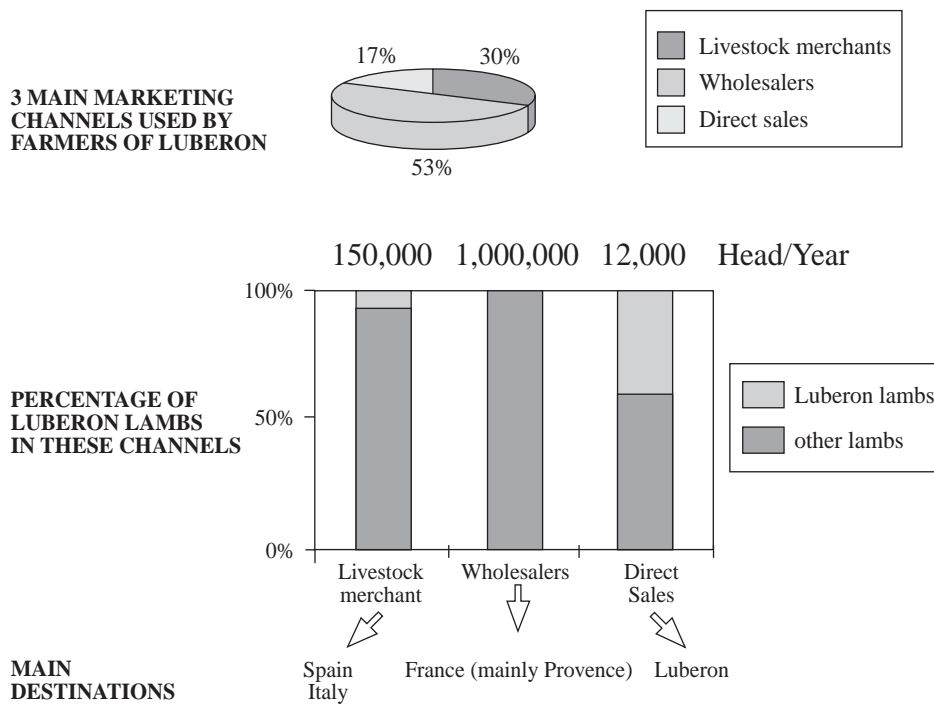


Figure 4. Marketing channels.

AHP+V, PNRL represents 17% of lamb production and 23% of consumption.

Three main marketing channels are used by the farmers:

1. Direct sales to consumers: this channel is associated with the high urban density of the PNRL (76% urban population, about 120,000 people) and the proximity of large urban areas (Avignon, Aix en Provence, Marseille) with more than one million inhabitants less than an hours' drive away). Large quantities are sold to Muslim consumers, who must themselves kill the lamb they eat, but many non-Muslim people like to buy whole lambs from farmers. This channel gives good prices, since consumers do not bargain hard for an animal which is anyway cheaper than in a butcher's shop, and has characteristics the butcher cannot provide. A total of 12,000 lambs/year are sold in this way, accounting for 13% of local consumption. As this business is profitable, and local farmers do not produce enough heavy lambs or hoggets (which are the type of animal more convenient for this market), some farmers buy animals from outside the Luberon (such as from the Crau, a neighbouring lowland zone with high sheep density). We can estimate that 5,000 local animals are sold directly, and 7,000 more are bought outside to be sold live to consumers.
2. Sales to livestock merchants: livestock merchants buying lambs in the PNRL are sheep specialists. They buy small, suckling lambs in autumn and export them to Italy and Spain. This channel is highly speculative, and dependant on the market situation in the export countries and currency exchange rates. Farmers have the possibility to choose at any time whether they sell their lamb as an export light lamb or fatten them for later sale as a “heavy” lamb. All depends on the present price of light lambs, the anticipated price of fattened lambs, the feeding resource available and its price, and the need of the farmer for cash. The available

marketing channels allow the farmers to choose the supposed best opportunity.

3. Half of the lambs produced in the PNRL are sold to six sheep specialised wholesalers. They are all slaughtered outside of the PNRL in one of the five abattoirs of AHP+V or in Marseille. Two of these wholesalers live in the PNRL, and used to slaughter their lambs in the public slaughterhouse in Apt. This abattoir was closed in 1996, and a new plant is being built near Apt, close to the meat processing plant belonging to the co-operative “Luberon-Ventoux”. The two wholesalers will slaughter lambs in the new plant when it opens, supposedly in late 1998 or early 1999. These two wholesalers market around 20,000 lambs/year. They would be the best sub-channel able to market any “Luberon” specified lamb, if this was feasible. The other four wholesalers are based at Sisteron, the largest lamb slaughterhouse in France, with a very old reputation for the quality of the lambs that are sold by its wholesalers. These four wholesalers market 500,000 lambs per year, half of the total quantity of lambs marketed by AHP+V wholesalers. The 9,000 lambs that they buy in the PNRL account for 2% of their total supply, and are marketed jointly with the other lambs bought from Provence, other French regions or from abroad. They have not the capacity, nor the desire, to develop any “Luberon” specification. But they could be interested in strengthening their commercial position in relation to the big supermarket chains by an official regional label. Their technical and trading infrastructure could quickly be able to operate any segmentation of the lamb market if necessary and if profitable. At the moment, it is not.

The only specific marketing sub-channel where lambs produced in PNRL are marketed, is the private label of the co-operative “Luberon-Ventoux”. This specificity has three components:

proximity, processing and name. Only 2% of Luberon lambs are marketed under this label, which is used for a larger zone (all the mountain zone of Vaucluse). A consumer survey in Avignon and the PNRL (Boutonnet & Tauzin, 1999), showed that some consumers (around 30%) would like to buy lamb produced with environment friendly methods, and that a part of them would accept a “Luberon” label as a guarantee for such husbandry methods. But most of the lambs grown on pastoral land are sold directly to consumers without any labels, and lambs marketed through organised channels are fed indoors!

Conclusion

Some factors affecting the relationship between sheep husbandry and land use can be identified. Land tenure is the first factor. The way different types of farmers with sheep can undertake agri-environmental operations on pastoral land depends on the status of land tenure. Multi-purpose farms with sheep use only their owned land. In contrast, specialised sheep farmers use large amounts of land they do not own. They are able to graze land they do not own when there is some financial incentive. Such agri-environmental measures allow them better and more secure access to wider areas of pastoral lands. This is confirmed by the fact all the livestock farms with agri-environmental contracts are specialised sheep producers.

The study conducted on all the sheep farmers with a contract shows a great diversity as far as flock management and farm history are concerned. These two factors explain a great part of the way farmers use pastoral land.

A market for identified lamb from Luberon seems likely to be developed. But farmers using more rangeland produce mainly hoggets, sold directly to consumers. Most of these consumers are Muslims, few are sensitive to the place the lambs they buy come from, or the way they are grown. They only want heavy, fat, live animals. On the other hand, farmers producing light, young, lean lambs fed indoors, are linked with those marketing channels able to add value with “landscape” quality, and these farmers use little rangeland, and the sheep are fed mainly crops and cultivated pastures.

The farmers engaged in agri-environmental schemes thus cannot obtain through the market the compensatory income needed. Some sort of public aid is necessary if improved environmental husbandry practices are to be developed. These grants should not be considered as a simple charge for a service. They have to be integrated in an agricultural development policy, aimed at increasing the adaptability of livestock farms. Environmental objectives have to be considered on a longer timescale than the duration of European incentive schemes. In

Luberon, the schemes aim at maintaining and even increasing open grassland, but ways must be found to improve the long term sustainability of sheep breeding farms which actually make use of those grazings.

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References

- Boutonnet J.-P. (1999). Lamb from Luberon : Diversity of the channels in the meat markets. In: *A Waterhouse & E. McEwan (Eds.). Landscape, livestock and livelihoods in European less favoured areas. SAC, Auchincruive, Ayr, UK.* p. 35-39.
- Boutonnet J.-P. & Tauzin, M. (1999). Segmentation of lamb market : South-eastern French consumers are not ready to recognise “geographical” quality. In: *A Waterhouse & E. McEwan (Eds.). Landscape, livestock and livelihoods in European less favoured areas. SAC, Auchincruive, Ayr, UK.* p. 41-44.
- Capillon A. (1993). Typologie des exploitations agricoles, contribution à l'étude régionale des problèmes techniques. *Thèse de doctorat de l'INA-PG*, 48 p.
- Hubert B., Girard N, Lasseur J. & Bellon S. (1993). Les systèmes d'élevage ovin préalpins. Derrière les pratiques des conceptions modélisables. INRA. *études et recherches sur les systèmes agraires et le développement* n° 27. p 351-387.
- Lasseur J. & Léouffre M.C. (1999). Sheep farms involved in the “calcareous grassland” agri-environmental scheme in the Luberon: diversity and dynamics of the farming systems. In: *A Waterhouse & E. McEwan (Eds.). Landscape, livestock and livelihoods in European less favoured areas. SAC, Auchincruive, Ayr, UK.* p. 25-29.
- Leouffre M.C. & Lasseur J. (1999). Sheep farms involved in the “calcareous grassland” agri-environmental scheme in the Luberon: varying capacities for the use of rangelands. In: *A Waterhouse & E. McEwan (Eds.). Landscape livestock and livelihoods in European less favoured areas. SAC, Auchincruive, Ayr, UK.* p. 31-33.
- Ponchelet D. (1999). Farming systems and sheep husbandry. In: *A Waterhouse & E. McEwan (Eds.). Landscape, livestock and livelihoods in European less favoured areas. SAC, Auchincruive, Ayr, UK.* p.15-19.
- S.C.E.E.S. (1989). Classification révisée des exploitations agricoles, études n° 182.
- Van der Ploug J.D. (1996). Bottom-up pressure on intensive livestock systems. *Proceedings of the third international symposium on livestock farming systems.* EAAP Publication n° 79, p 37-49.