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Organization logics of transhumance in Pyrenean sheep farming systems

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SUMMARY - In the Spanish Pyrenees sheep farming systems have traditionally involved an inverse or descending transhumance. In this less favoured areas, farming systems play a relevant role in the protection of the environment. The farming systems practised are conditioned by several factors, amongst them the environment and the family situation in the farms. The present paper analyses the different ways of organizing transhumance and its relation to the socio-economic characteristics of the family. By means of a multivariate analysis, three types of transhumance systems were obtained from a sample of 25 farms. The farmer's age, the continuity of the farm, the number of family members working on the farm, pluriactivity and the number of pensions are studied in every group.

Key words: Sheep farming systems, organization of transhumance, classification, family farms.

RESUME - *"Logique de l'organisation de la transhumance des systèmes d'élevage ovin dans les Pyrénées". Dans les Pyrénées, la transhumance ovine est un système traditionnel. Les exploitations ovines pratiquent une transhumance inverse depuis la montagne vers la plaine. C'est un système qui se trouve en régression depuis longtemps, mais qui joue un rôle important dans la conservation du milieu. En général, les systèmes pratiqués sont déterminés par divers facteurs entre eux l'environnement et les caractéristiques de la famille. Dans ce papier, on analyse différents types d'organisation de la transhumance. Sur un échantillon d'exploitations ovines transhumantes et à travers des analyses multivariées nous avons obtenu trois types de transhumance. Dans chaque type on analyse des variables sur la famille, comme l'âge de l'éleveur, la continuité de l'exploitation, le nombre de personnes de la famille qui travaillent sur l'exploitation, la pluriactivité et le nombre de pensionnaires.*

Mots-clés : *Systèmes ovins, organisation de la transhumance, typologie, exploitation familiale.*

Introduction

Transhumance is a very ancient livestock practice which has developed greatly in Europe and is identified with the periodical movement of livestock along fixed routes, being determined by scarce grazing areas in certain seasonal periods (Grig, 1974). In the Pyrenees, and within a society whose objective was to obtain the greatest utility from resources, sheep farms have traditionally practised an inverse or descending transhumance going from farms located in the high valleys (Chevalier, 1980). Nowadays, and for many years, there has been a decline in transhumance which is due to, amongst other things, the difficulties of adaptation and integration into the socio-economic system- which is responsible for the general transformations of traditional livestock systems (Bazin, 1984).

In general, livestock systems do not only have a productive function but also play an important part in the protection of the environment. Livestock farming takes on a fundamental role in mountain areas. Since these are less favoured and fragile areas the conservation of the environment depends to a large extent on the livestock activity (Wit, 1989).

The farming systems practised are conditioned by various factors, amongst them the socio-economic setting and the characteristics of the family. At present the subsidies favour sheep systems with large flock sizes, which in mountain areas should preferably be transhumant (Manrique *et al.,* 1996). These measures stabilize these systems, even though the systems are subject to the uncertainty of economic measures which are not specific to these areas. As well as the setting that surrounds the farms the interactions between the family unit and the farm explain, to a large extent the differences in behaviour of different farms (Bryden, 1994). So as a result, to understand the global working of the farms, it would seem that we must know the relations between the family and the farm

(Errington and Gasson, 1994). Within this framework the present paper analyses the different ways of organizing transhumance and their relations to the socio-economic characteristics of the family in mountain sheep farms, as an approximation to an analysis of the possibilities these systems have of surviving.

Methodology

The information used has been obtained via interviews on 25 farms in the Pyrenean valleys of Benasque, Broto and Baliera-Barraves (Spain) (crop year 1991-92). From this information we have specified different variables referring to the practice of transhumance. For the identification of types of transhumance, via Factor Analysis of Multiple Correspondences (FAMC) and Cluster Analysis, seven variables have been used which refer to the way the transhumance is carried out, the type of shepherd, the type of land used, the importance of the transhumant flock in the farm, the average cost of the transhumance, the length of the transhumance and the importance of transhumance in the annual feeding of the flock. To study the relations between types of transhumance obtained and family characteristics variables have been used referring to the farmer's age, the perspectives of continuity of the farm, the number of family members working on the farm, pluriactivity and the number of people receiving pensions.

Results and discussion

Characteristics of transhumant farms

These are family farms in which the average age of the farmer is 40 years. 40% of the farms have owners whose age is between 40 and 50, and 32% between 30 and 39.

In general they are farms which specialize in sheep, although 36% have sheep and cattle. The size of the flock is highly variable, but the average size is large (702 heads). They have an average of 50 ha UAA on the farm itself and 200 ha, usually rented, in the wintering areas. In these areas they generally take advantage of the remains of irrigated crops, rangelands, fallow land and to a lesser extent specific forage crops. The wintering areas are basically the La Litera region, the Bajo Cinca region and Lérida province, the average distance being about 150 km.

Types of transhumance

From the FAMC carried out four factors were obtained which explain 66% of the total inertia. From the co-ordinates of the farms in the first three factors a cluster analysis was carried out and three groups or types of transhumance were obtained (Table 1).

Type I. Collective transhumance forming large flocks and on irrigated land. This is made up of nine farms which do the transhumance together with other farms and rent only irrigated fields in the lowland areas. The flock is looked after by the farmer himself or by a shepherd who is hired by all the farmers. This is the group which spends least time in the wintering areas, but the average cost per head of livestock is the highest of the groups. However, the importance of transhumance in the annual feeding of the flock is that of only 29% of the sheep livestock units fed. The importance of the transhumant flock in the farm is very variable, that is to say on some farms the whole flock does transhumance and on some an important part of it and on others only a small part. Two different subtypes are differentiated, depending on the importance of the transhumant flock for the farm, the average cost and the way of organizing the shepherding of the flock.

Type II. Solitary transhumance. This is a group of nine farms where the trashumance is done alone, via the renting of only irrigated land or with dry land crops and irrigated crops and where the average stay is 207 days. The average cost is intermediate among the groups obtained, as well as the sheep livestock units fed during the transhumance period. These are large transhumant flocks. since there are an average of 791 heads. Two different subtypes can be differentiated: one in which the farms use dry land and irrigated land during the transhumance and where the part of the flock that

does transhumance is important; and the other subtype is where the entire flock does transhumance and it uses only irrigated land.

Type III. Transhumance of all the flock and least cost. This is a group of seven farms, on which the whole flock does transhumance during the longest period of time, 224 days. So, this is the group in which transhumance plays the most important part in the feeding of the flock, whilst it has the lowest average cost. During the transhumance they generally use dry land and irrigated crops and the farmers themselves or shepherds permanently employed by the farms look after the flocks. The transhumance can be carried out either by forming large flocks with other farmers or alone, so the average size of the transhumant flock varies between 246 and 1,350 heads.

Table 1. Characteristics of types of transhumance

Variables	Type I	Type II	Type III
The way the transhumance is carried out	Collective transhumance	Individual transhumance	Collective or Individual transhumance
Type of shepherd	The farmer or common shepherd		The farmer or shepherd employed by the farm
Type of land used in the wintering areas	Irrigated crop	Irrigated crop or dry land and irrigated crop	
The importance of the transhumant flock in the farm		The whole flock or an important part of the flock	The whole flock
Transhumant inputs/head (ptas) (Average)	5,846	4,102	3,314
Number of days of the transhumance (Average)	180	207	224
% Livestock Unit (LU) feeding in the transhumance (Average)†	29	47	56

†(Number of days Trashumant LU/365/LU)*100

Types of transhumance and family characteristics

We can observe that on the farms where the whole flock does transhumance (Type III) the average age of the farmer is 35 years, whereas in Types I an II it is higher. Regarding the perspectives for the continuity of the farm, in the majority (66%) of the farms which do transhumance forming large flocks and using irrigated fields (Type I) continuity is not guaranteed. Contrary to this, in Type III all the farms have their continuity guaranteed, the same being true for the farms which do transhumance alone (Type II), except in one where it is uncertain.

Regarding family labour potential, it is in Type III that the greatest number of family members work on the farm, being more than two people in 71% of the farms. At the same time on these farms there are elderly people who receive pensions (2 pensions in 71% of the farms). On the farms which do collective transhumance (Type I) 55% receive pensions and 33% on the farms which do transhumance alone (Type II). Also, on these two types the family labour potential is less than on Type III.

Pluriactivity is of little importance on these farms, above all pluriactivity by the owner of the farm. Nevertheless we can observe that on the Type II farms there is a greater presence of other activities done by the partner or another member of the family (on 33% it is the partner and on 44% other members of the family). The presence of pluriactivity is less in the other two types of transhumance, above all on the farms which form large flocks for transhumance (Type I).

Conclusions

Ovine transhumance is present in both specialized sheep systems and in mixed sheep-cattle systems. One third of all transhumant farms have also cattle herds. The characteristics of these transhumant systems are very diverse in terms of their individual or associative practice, duration, percentage of animals, transhumance costs, type of winter area, etc.

We can differentiate three organization structures related to different family characteristics. Big herds, short duration of transhumance, lower percentage of animals involved, higher costs and use of irrigated winter areas, determine the first group. The farms in this group are managed by old people, the continuity of the farm is not assured, the availability of labour is low and there is not pluriactivity. In these farms, transhumance is continuously decreasing and seems to have little justification.

On the other hand, the third group is characterized by longer duration of transhumance, 100% of animals involved and lowest costs. The farmers of this group are young, the continuity of the farms is assured, they have high availability of labour and little pluriactivity. These farms are well established, with dynamic families, professional management and full economic justification.

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