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# Organization of development structures in dairy Latxa (breed) sheep in the Autonomous Community of the Spanish Basque Country

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**SUMMARY** - This paper describes the main development organizations of dairy sheep in the Autonomous Community of the Basque Country (CAPV), as well as its evolution and current status after the initiation of a conservation and improvement programme of the native Latxa and Carranzana breeds in 1981, by the Department of Agriculture and Fisheries of the Basque Government. The territorial breeders associations (AGORALA, ELE, ACOL and ASLANA) together with the management centres (SERGAL, LURGINTZA, LORRA) and the respective Provincial Governments of the CAPV (Alava, Gipuzkoa and Bizkaia), are the basic development structures of the Milk Health and Milk Recording Programmes. Ardiekin-Confelac as a structure which participates in the Associations, develops the management of the genetic improvement programme through the use of AI. The research centres of the Autonomous Community of the Basque Country (CIMA and SIMA) participate actively in different R&D projects. The professional organization with closest links to Idiazabal cheese (Artzai-gazta and Appellation d'Origine) participate in the defence of a production system characteristic of the Spanish Basque Country and Navarre.

**Key words:** Dairy sheep, development, Latxa breed, organization.

**RESUME** - "Organisation des structures de développement des ovins laitiers de race Latxa du Pays Basque espagnol". Dans ce travail on décrit les principales organisations de développement des ovins laitiers du Pays Basque Espagnol (CAPV). On décrit aussi l'évolution et la situation actuelle, depuis qu'en 1981, le Département de l'Agriculture et de la Pêche du Gouvernement Basque entama un plan de conservation et amélioration ovine des races autochtones Latxa et Carranzana. Les associations territoriales d'éleveurs (AGORALA, ELE, ACOL et ASLANA), en même temps que les centres de gestion (SERGAL, LURGINTZA, LORRA) et que les Conseils Généraux respectifs de la CAPV (Alava, Gipuzkoa et Bizkaia) sont les structures de base du développement des programmes de Santé et Contrôle Laitier. Ardiekin-Confelac, en tant que structure participative des Associations, développe la gestion du programme d'amélioration génétique, à travers l'utilisation de l'IA. Les Centres de Recherche de la CAPV (CIMA et SIMA) participent activement avec différents projets de R+D. Les organisations professionnelles plus liées au fromage Idiazabal (Artzai-gazta et Appellation d'Origine Contrôlée) participent dans la défense d'un système de production caractéristique de la CAPV et de Navarre.

**Mots-clés :** Ovin laitier, développement, race Latxa, organisation.

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## Introduction

The Autonomous Community of the Basque Country (CAPV) is located in the north of Spain, next to the Cantabrian sea and the French border in the Eastern Pyrenees. It has an approximate population of 2.2 million, distributed over a surface area of 7.3 km<sup>2</sup> with a high population density (300 people/km<sup>2</sup>), concentrated in valley areas, as the region is very mountainous.

The Latxa and Carranzana breeds are two breeds of native dairy sheep of the Basque Country and Navarre (the Latxa breed is called Manech in the French Basque Country). There are two varieties of Latxa breed: Black face Latxa (LCN) and Blond face Latxa (LCR). Both are differentiated by the colour of the skin and normally constitute two genetically-separated groups. The total census of these breeds is estimated at some 961,000 ewes of which approximately 450,000 are in the French Basque Country and 200,000 in Navarre. In the CAPV there are approximately 311,000 ewes on 4,080 farms, with more than 10 ewes per farm (Fig. 1).

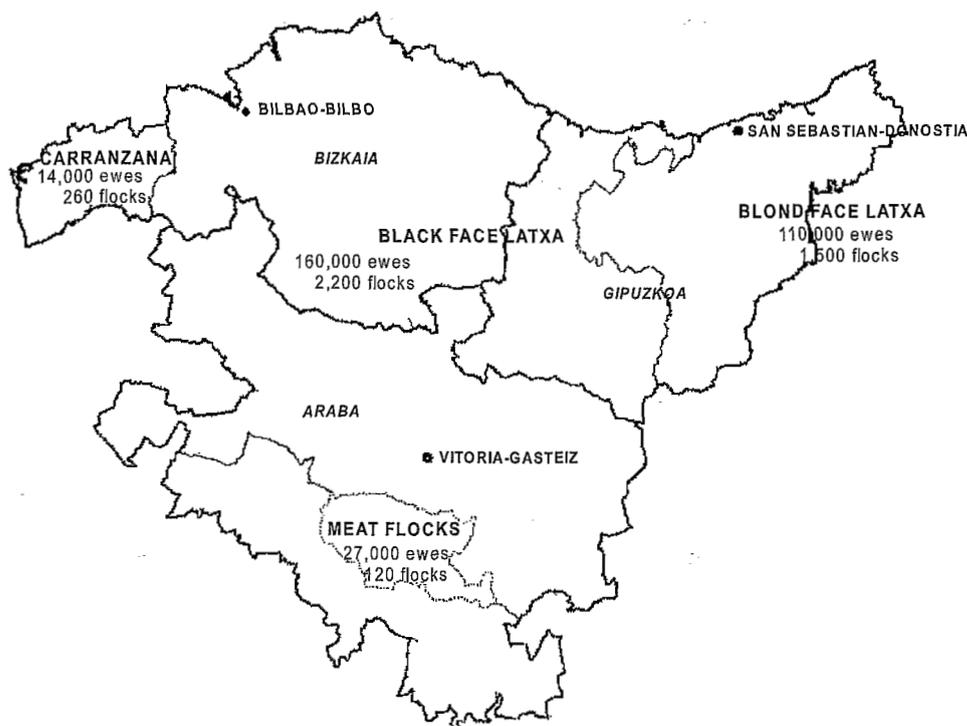


Fig. 1. Geographical distribution of sheep breeds in the Autonomous Community of the Basque Country - 1996.

The above-mentioned figure shows that there are approximately 160,000 LCN ewes distributed over 2,200 flocks, 110,000 LCR ewes distributed in 1,500 flocks and 14,000 Carranzana breed ewes distributed in 260 flocks. The flocks are located in the most mountainous areas of the Basque Country and are, in general small, with an average size of 75 ewes per farm, which varies according to area and breed (54-225).

The climate of the Basque country is temperate-humid with annual rainfalls which range between 800 and 1,200 mm and average monthly temperatures which vary from 3°C to 22°C.

The justification for the ovine production system and the processing of Idiazabal cheese by Latxa farmers can be summarized in the following points:

- (i) Historical-Cultural
  - Sheep have been farmed since prehistoric times (Ruiz *et al.*, 1997).
  - The relationship between Basque-speaking areas and the extension of the breed of ewes.
  - The pastoral culture as a traditional way of life in country farmhouses.
  - Preservers of the *communal* concept and pastoral communities.
- (ii) Social
  - Social prestige of the shepherd, owner of the flock and cheese-maker.
  - Active participant in regional and local fairs and competitions.
- (iii) Economics
  - Conservation of the population in rural and mountain areas.
  - Valuation of the milk in cheeses (done mainly by women).
- (iv) Ecology
  - Active agents in the maintenance of mountain ecosystems by means of transhumance and transterminance.

## Development structures

Figure 2 summaries the organizations and structures involved in ovine development in the CAPV as well as the interrelationship between these.

In 1981, the Department of Agriculture and Fisheries of the Basque Government initiated a of conservation and improvement programme of native breeds of sheep (Latxa and Carranzana). The Associations of Latxa Breeders, AGORALA, ACOL and ELE, were promoted by the Provincial Councils of Alava, Bizkaia and Gipuzkoa, respectively.

### Farmers Associations (Milk Recording)

The breeders associations are open and autonomous, and are recognized as Collaborating Entities in matters relating to Production and Health (Vegetable and Animal). These powers were assumed in 1981 by the Department of Agriculture and Fisheries of the Basque Government in the Spanish State and in 1985 were transferred to the Provincial Councils (Regional Governments).

The Provincial Councils establish four-yearly collaboration agreements (revised on an annual basis by means of budgets) with the respective territorial associations. These agreements establish the technical programmes to be carried out (Milk Recording and Genetic Improvement, Health, and Technical-economic management) and priority is given to replacing animals from the same farm in accordance with the productive or genetic rating (since 1993) of the sheep in the flock.

The farmers who belong to these associations pay a quota per ewe and flock. They also pay a quota for insemination and a quota for the services provided by the association, such as alimentation and technical-economic management, construction projects, etc. All these services are integrated within the genetic improvement programme and are closely linked. As each association operates in an independent manner, their quotas differ (Gabiña *et al.*, 1992).

At this time, the personnel employed by the Associations or Management Centres consist of 10 controllers (4 part-time) and 4 technicians (they work with dairy sheep and other kinds of livestock). The Territorial Management Centres (SERGAL in Alava, Cooperativa LURGINTZA in Gipuzkoa and Cooperativa LORRA in Bizkaia) provide computer, administrative and organizational support. The Provincial Councils finance up to 80% of the costs of personnel and variable percentages of the costs relating to technical programmes (Ugarte *et al.*, 1995).

*Milk recording.* This concept includes all the activities of farmers (identification of ewes and lambs, birth records, etc.), controllers (data gathering on production and flock censuses, individual monthly control of the milk of the ewes in the flock, etc.) and the Management Association-Centre (reports and computer output: Performance records, production ratios, etc.).

The interaction between milk recording and the selection method as well as the characteristics of the data bases have been recently described in Ugarte *et al.* 1997.

Milk recording represents approximately 50% of the costs of the ovine improvement programme in the Autonomous Community of the Basque Country and the overall data for 1997 are as follows: 194 flocks with 64,835 ewes, 41,099 recorded births and 26,267 estimated lactations.

### Ardiekin-Confelac (Selection - Genealogical Book)

Ardiekin, is a company created in 1988 in response to the need to structure and manage the Selection Process in Latxa ewes on a joint basis. Its current legal status is a Limited Liability Company and the Territorial Associations of Alava, Gipuzkoa and Bizkaia have equal shares in the company. The Association of Latxa sheep breeders of Navarra (ASLANA), owns an eighth of the shares and only takes part in the selection of the Blond Face Latxa breed.

Its facilities are located in the Granja Modelo of Arkaute (Alava) and consist of three sheds for males (one of them with forced ventilation, automatic control of temperature and light) and a laboratory for processing semen. The personnel employed by Ardiekin consist of one employee with a permanent contract, a part-time manager, a technical-veterinary officer and a part-time labourer for weekends and holidays.

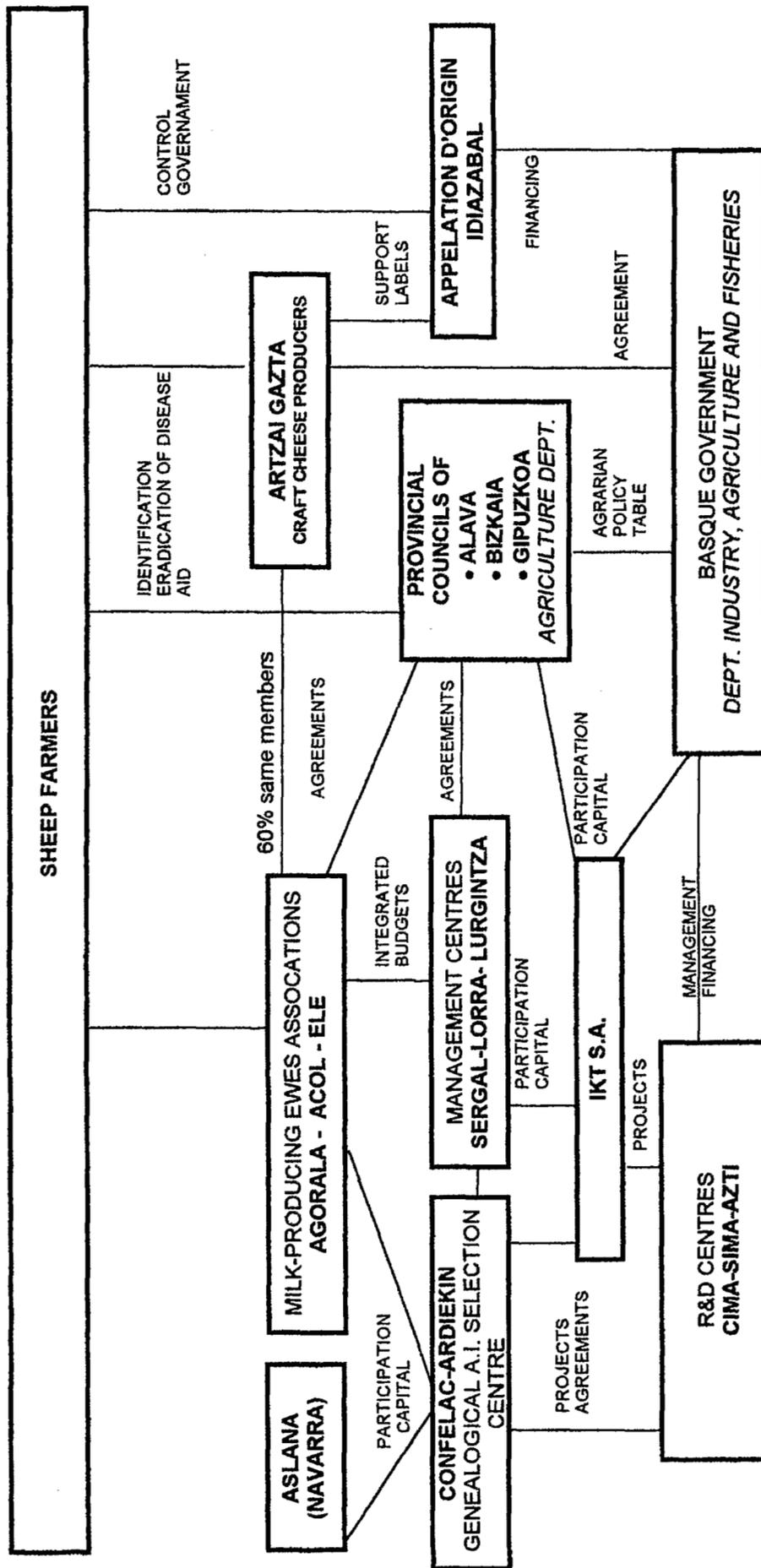


Fig. 2. Organizations and structures involved in the development of milk-producing ewes in the Autonomous Community of the Basque Country.

The main function of Ardiekin is the testing of males and the distribution of improving males by means of AI. The different stages to which males are submitted are as follows: selection, by descent, of the lambs which enter the artificial selection centre; elimination of males not useable for AI; testing on descent and the dissemination of improving males. With three basic aims: production of female replacement lambs, the production of males for use in natural mating and the production of mates for the selection centre. One part of the mate, 94, which are not testing are sold to farmers outside the Milk Control, which allows genetic improvement to be distributed among the rest of the population.

In 1997, 123 lambs were selected from 68 farms in accordance with the genetic values of the parents and the general conformation of the mother and lamb. There have been 14,124 inseminations on 168 farms, with 69 tested males and 40 improving males.

In addition to the personnel who work directly in the associations or in Ardiekin there is considerable technical and research support from the Department of Industry, Agriculture and Fisheries of the Basque Government. In this sense, there are technical personnel who work directly from the Centre for Research and Agrarian Improvement (CIMA) within the programme of genetic improvement and selection, although not on a full time basis (one coordinator and two technicians). The projects which are directly related with the programme of genetic improvement and selection are as follows: (i) development of the selection and optimization of the parameters of the selection method; (ii) effect of photoperiod on seminal quality in a selection and AI centre; and (iii) genetic comparison with the Manech breed and training of reproduction technicians (CAPV-Aquitaine-Navarra project).

Confelac is the confederation of Latxo and Carranzano Associations and is directed by the technical officer of Ardiekin. Its main function is the management of the Genealogical Register. In 1997 there are 264 farms registered in Alava, Gipuzkoa, Bizkaia and Navarra with 67,695 reproducers in 5 registers (Foundational, Auxiliary, Birth, Definitive and Merit). The company IKT provides it with computer support.

## Identification and Health (Provincial Councils-SIMA)

In 1982 and 1983, coinciding with the identification of the animals (by means of a ear-tag and a tattoo) to enable production control, disease eradication controls were begun (*Brucella melitensis*) in the farmers Associations. In 1984, after detecting the presence of *Brucella ovis* and a high incidence of epididimitis in the rams, eradication campaigns were officially initiated for the flocks registered in the Associations. These campaigns were carried out generally in the entire ovine population of the CAPV and at the same time all the animals on the sheep farms were identified by means of a eartag. Since 1987, all sheep have been identified and controlled by the livestock breeding services of the Provincial Councils and developments in health terms are very satisfactory (Hanocq *et al.*, 1993).

In 1996, the percentage of positive instances of *Brucella melitensis* and *Brucella ovis* in flocks and animals was 0.57% and 0.12%; 1.33% and 0.90%, respectively, of *Brucella melitensis* of an approximate total of 4,322 flocks and 281,225 animals investigated, of which 484 were sacrificed.

In 1988, the Livestock Breeding Service of the Provincial Council of Alava put into motion a 6-year Ovine Contagious Agalactie eradication programme along the Entzia Mountain Range (the last point with clinical cases in the CAPV) forbidding the vaccination of animals and making serological analyses of all the animals in the flocks. Currently, the Autonomous Community of the Basque Country is free of this disease.

SIMA (Service for Research and Agrarian Improvement), in Derio (Bizkaia), has carried out several research projects to determine the epidemiological situation of the different ovine diseases. At present, some of these projects are underway, mainly in the farmers associations and ARDIEKEN. The most important projects at this time are as follows:

(i) Retroviral diseases in small ruminants (Maedi-Visna, Adenomatosis and Intranasal enzootico tumour). Projects with European financing.

(ii) Mastitis in small ruminants. European project.

(iii) Gastrointestinal parasitosis. Diseases transmitted by ticks. Micro-bacteria of ruminants. National projects.

## Management Centres (Services, Alimentation, Technical-Economic Management)

These are the territorial organization which, mainly in the form of cooperatives (SERGAL in Alava is a Federation of Associations), provide services to farmers and farmers organizations (professional Associations and agrarian cooperatives). Fig. 3 indicates the different services carried out by the Management Centres. A specialized service of management centres is the dairy sheep alimentation service aimed at adjusting the food rations to the needs of ewes by combining their own fodder (advice on the introduction of meadows and crops) with those purchased, and the supply of concentrates (cereal grains or composite feed). Three visits are made each year. The first visit is made to provide advice and ration food at the end of the gestation period and the beginning of lactation. The second visit is made during lactation at the beginning of grazing on natural pastures (modification of rations) and the third visit is made at the end of lactation in order to analyse the results of the campaign, to make forecasts regarding the purchase of fodder and to prepare natural matings or AI.

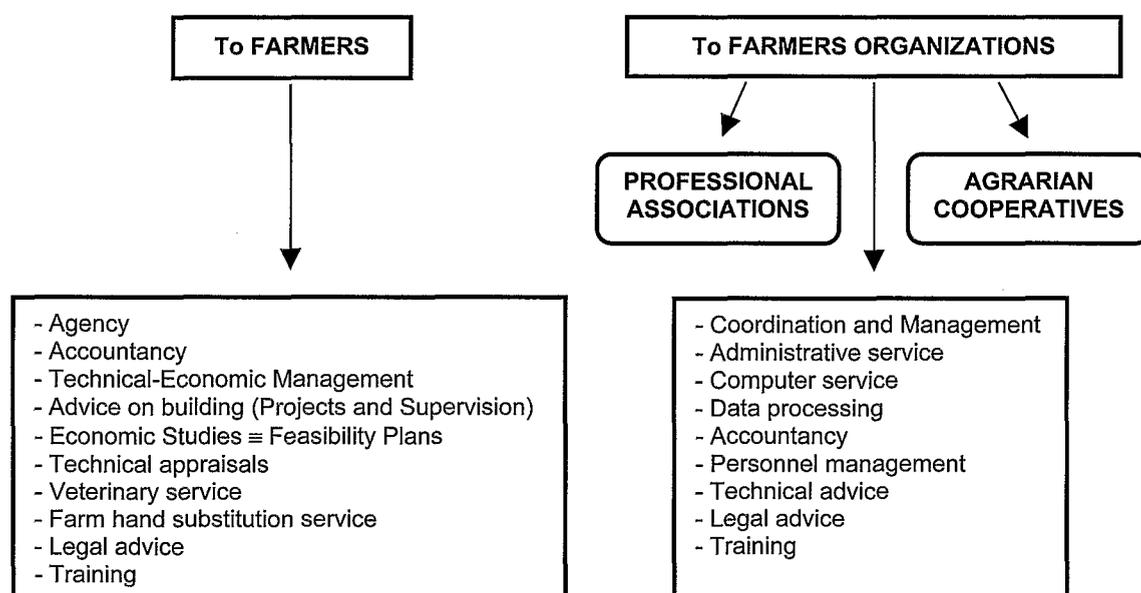


Fig. 3. Services of the management centres in the Autonomous Community of the Basque Country.

Until a few years ago, technical-economic management was linked to alimentation as the feed costs represent 60-80% of the variable expenses of the cost of a litre of milk produced (60-75 ptas per litre).

Technical-economic management programmes have been developed by the different territorial management centres since 1987, mainly in Gipuzkoa. This service includes the farm as a whole, both in technical-productive aspects and from the economic point of view. The programme consists of the gathering, by farmers, of the data required to determine its level of production efficiency. These are used on a two-monthly basis, to draw up a report which is sent to the Association for recording and analysis. During the four visits made every year by a technician, other structural data is collected and an appraisal or monitoring is carried out:

- (i) *Technician*: Alimentation; Management of Meadows and Counselling on Installations.
- (ii) *Economic*: Technical-Economic Ratios; Operating Accounts; Feasibility Plans, Economic Studies.

In spite of the importance of these services, only 60 dairy sheep farmers requested them in 1998. Since 1988, CIMA has carried out a programme of alimentation research and participates in the development of projects with the technical services of the Associations and Management Centres. It also has an experimental flock of 200 head in the Granja Modelo de Arkaute.

Currently, work is being done on:

(i) *Nutrition and Alimentation*. Nutritive appraisal of forage resources and improvement in feeding systems (alimentation indoors or pasturing), weaning and milk production methods.

(ii) *Production systems*. Analysis of systems and study of the use of extensive pastures and mountain areas. Characterization and assessment of the use of marginal and mountain areas.

## Appellation d'Origine Idiazabal-Artzai-gazta

Idiazabal cheese is processed in the CAPV and Navarra from raw Latxa and Carranzana ewe's milk. Since 1986 it is protected by the *Appellation d'origine* (A.O.) which guarantees its origin and quality. In 1987, Artzai-gazta was set up as a cooperative to defend the interests of cheese producers who make cheese with milk from their own farms. Currently, it groups and provides advice to 120 farmers (60% integrated in the Associations) on milk transformation and processing techniques for Idiazabal cheese, installations, hygienic-health conditions, etc. They participate actively in fairs and local, regional and national competitions, etc. They have one technician and a part time office worker.

According to data from this A.O. for 1995 there are 633 dairy sheep farms registered, of which 535 sell ewe's milk to 20 dairies members of the A.O. Idiazabal and 98, belonging to a association called Artzai-Gazta ("shepherd's cheese" in Basque), use the milk from their own farm in the processing of cheeses. The volume of ewe's milk with *Appellation d'origine* produced during 1995 was 6,520,960 litres of which 23% corresponded to Artzai-Gazta producer's and the rest (77%) to farmers who sell milk. The average milk production per farm is higher in cheese producers: 15,306 litres compared to 9,385 litres (Urarte *et al.*, 1996).

## Conclusions

The importance of dairy ewes in the Autonomous Community of the Basque Country is not only at an economic level but social too, as it takes advantage of natural resources in disadvantaged and marginal areas, allowing a certain number of families to make a living and avoiding the effects of depopulation and erosion in these areas.

Latxa and Carranzana are two native, dairy breeds, very well adapted to the environmental conditions of the Basque Country. Many generations of farmers (shepherds) have made a living from farming this breed in which, a considerable level of purity has been maintained over the centuries.

The milk recording organization in the Autonomous Community of the Basque Country has been useful in order to: (i) identify the animals permanently; (ii) initiate campaigns to eradicate disease and make experiments in ovine health R&D; (iii) determine the production results of dairy flocks and farming systems; and (iv) develop the selection method and provide data for the technical-economic management of flocks.

After fifteen years of work, the improvement programme has been accepted by farmers and the results can now be seen in dairy farms. The organizational and control structure is complicated and has many individual qualities due to the distribution of government powers. The necessary consensus to establish the main operational procedures and the aims of the program focus upon the Centre for Research and Agrarian Improvement (CIMA-Granja Modelo), headquarters of Ardiekin, IKT (a company in which the Management Centres and the different governments of the Autonomous Community of the Basque Country participate) and the *Appellation d'Origine* Idiazabal.

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