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Organisational changes in the Latxa breeding programme to introduce selection for milk quality

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SUMMARY – This paper presents the evolution and changes in the organisational structure of the genetic improvement program of the Latxa breed from 1982 to 2001. The most important aspects are emphasized in order to show how the organisation must be in accordance with the dimension of the program and with the production system of the breed. Changes in methodology and in personnel are shown. It is also shown that the financial support by the administration is essential in the first steps of the program.

Key words: Dairy sheep, Latxa, organisation, selection program.

RESUME – "Changements organisationnels dans le programme d'amélioration de la race Latxa afin d'incorporer la sélection pour la qualité du lait". Cet article présente l'évolution et les changements de la structure organisationnelle du programme d'amélioration génétique de la race Latxa de 1982 à 2001. Les aspects les plus importants sont soulignés afin de montrer de quelle façon l'organisation doit s'adapter à la dimension du programme et au système de production de la race. Les changements concernant la méthodologie et le personnel y sont décrits. Il y est également montré que l'appui financier de l'administration est essentiel pendant les premières étapes du programme.

Mots-clés : Ovins laitiers, Latxa, organisation, programme de sélection.

Introduction

The census of Latxa (Black-face and Blond-face ecotypes) and Carranzana dairy sheep breeds in Spanish Basque Country (SBC) and Navarra is around 470,000 ewes distributed in more than 8500 flocks (Fig. 1). The milk recording program records 20% of this population.

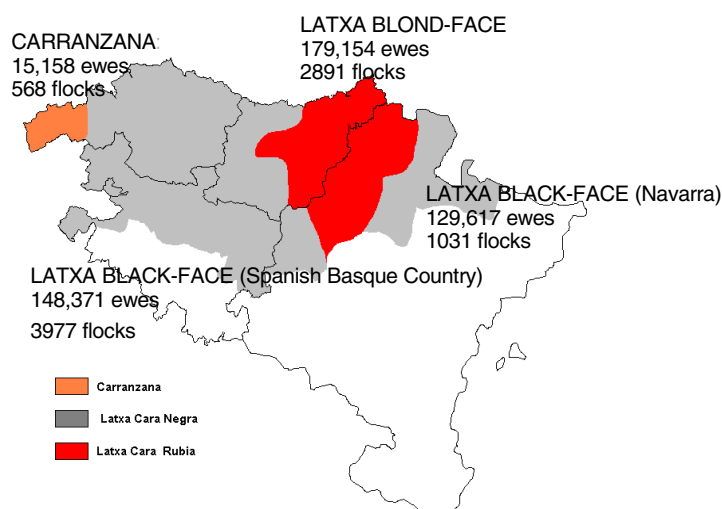


Fig. 1. Geographical distribution of Latxa and Carranzana breeds, 2001.

The selection program started in 1985. It is focused on increasing the milk yield production per ewe and it uses as selection criterion the standardised milk production up to the 120th day of lactation. Nowadays, we can say that the program is well implemented and that it has a good genetic gain of 3% (0.18 genetic standard deviations) per year (Ugarte, 2001). Moreover, we are studying the introduction of new traits into the selection criterion (Ugarte and Legarra, this volume).

Organisation and co-ordination between the different partners of the genetic program are very important aspects in order to obtain a good program implementation and good results. These aspects have been studied in the Latxa breed (Ugarte *et al.*, 1995; Urarte *et al.*, 1999). In this work we will analyse the changes in the organisation of the milk recording and genetic program according to its evolution and selection objectives and criterion.

Technical organisation

There are 3 basic structures in the Latxa and Carranzana breeding program (Ugarte *et al.*, 1995): (i) breeders associations; (ii) artificial insemination centre; and (iii) technical and research support.

There are 4 breeders associations, one for each administrative region. Together they constitute CONFELAC: confederation of associations. The breeders associations carry out the milk and pedigree recording and the data processing through management service centres. These centres also give another technical support to farmers (technical-economic management; economic studies, advice on farm building, etc...) and to breeders association (co-ordination and management, administrative, computing, personal and legal service, etc...).

The insemination centre (ARDIEKIN, S.L.) produces the AI doses and maintains the rams. The insemination centre belongs to the breeders associations.

The technical and research support is given by NEIKER (Basque institute of Agricultural Research and Development).

Chronology and changes

1982: milk recording program started. The program started in the SBC with 160 flocks and 46,708 ewes (Fig. 2). A4 methodology was used (ICAR, 1995) and 15 milk-recording officers were employed. Other 4 technicians made the co-ordination and advisement. Except for one association, data processing was made by 2 technicians of the public administration who also verified and validated all the information proceeding from the milk recording program.

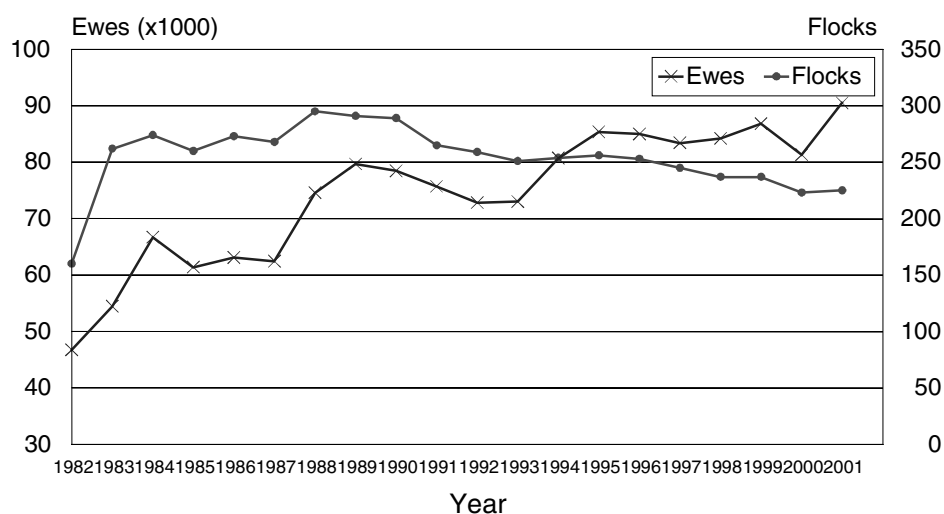


Fig. 2. Evolution of milk recording program.

1983: a experience was designed in order to analyse the implementation of qualitative milk recording and the economical interest of introducing milk composition traits into the selection criterion. The experience finished in 1986 (Maria, 1989)

1984: breeding program started – 35 males were selected according to the milk production of their mothers. For that, 63,519 lactations calculated during three years (from 1982 to 1984) were used. Public administration carried out the maintenance of males and it was necessary the incorporation of another technician.

1985: each association processes their own data. The validation and verification keeps being made by public administration.

In relation with milk recording program, A4 methodology was substituted by AT methodology (ICAR, 1995). This fact allowed a decrease in the number of milk recording officers from 15 to 14.

Artificial insemination also started (Fig. 3) this year. The inseminations were made with fresh semen and 2 technician carried them out (one belonging to public administration and another from the associations). Milk recording officers make the inseminations provided that the inseminations started when milk recording finished.

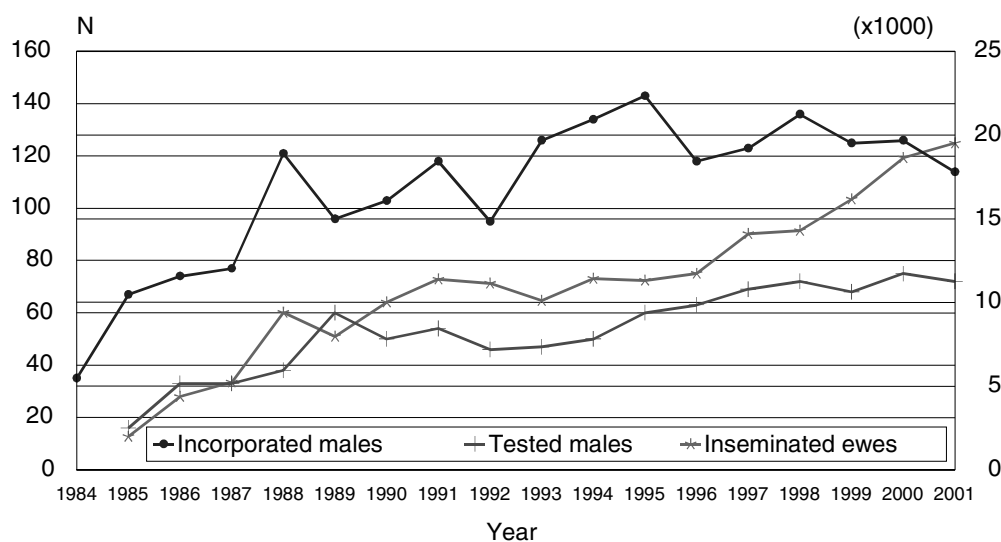


Fig. 3. AI centre activity.

Artificial insemination supposes an important increase of work and the good organisation is essential. 14 days before the insemination the ewes must be chosen in order to apply the hormonal treatment (progesterone). This work is also made by the milk recording officers and it is necessary the help of the shepherd. The same technicians also are who remove the sponges 12 or 14 days later (depending of the season) and who inject the gonadotropin. The inseminations are made by couples of technicians. The control of mating was made handily with the identification of ewe and male. Nowadays, the identification of ewes selected to be inseminated is sent to insemination centre and each particular mating is directed from insemination centre. The technician must apply the mating indicated in a printout. The average number of inseminations made per hour is 120

On average, the number of jumps per ram and day is 2 and the rams, if it is possible, are used in alternative days.

The average distance between the insemination centre and the farms is 80 km but there are farms located between 120-20 km far away.

1988: the artificial insemination centre (ARDIEKIN, S.L.) was constituted and the responsibility of its management passed from public administration to breeders associations. One new worker (technical director) was incorporated.

The administration carried out the first ram genetic evaluation.

The milk recording program started in Navarra with 11,616 ewes in 38 flocks. They supposed the incorporation of 4 people (1 technician and 3 milk recording officers).

Breeders associations get the responsibility of validation and verification of data.

1989: an experimental milk composition recording program started using the AT methodology in 106 flocks and finished in 1991. Only two year-old ewes were recorded. The analysis of data showed problems linked with the sampling, the methodology of milk composition analysis and the suitability of AT methodology for this objective (unpublished results).

1990: the confederation of associations (CONFELAC) is constituted and Spanish national government recognised the Latxa herd book. Economical supports from the Spanish government were derived to genetic program maintenance. The number of milk recording officers and technicians decreased (from 14 to 12 and from 4 to 3 respectively).

1991: incorporation of Navarra to Blond-face ecotype selection program.

1993: a computer software that directs the AI mating was designed in order to make easier the control of inbreeding and to improve the genetic progress.

1994: the average number of semen doses for each ram jump in the Latxa breed is 7 (Beltrán de Heredia, 1995). This fact very strongly limits the use of rams. The control of temperature and light can improve these results and a new building was built with this objective.

1995: in this year studies in order to improve theoretical aspects of the genetic program were started. Genetic group effect was included in the genetic evaluation model (Ugarte *et al.*, 1996, 1997).

The estimated cost of genetic program in this year was around 510,000 € with 60,875 controlled ewes (Ugarte *et al.*, 1995; only Basque Country). 80% of the cost was supported by public administration.

1997: the interest of introduction of new traits (udder morphology and milk composition) was taken up again. An experimental udder morphology recording program started over 12 flocks during three years (de la Fuente *et al.*, 1998; Legarra *et al.*, 1999). Milk composition aspects were also take up again (Legarra and Ugarte, 2001).

1999: milk composition recording program started in 34 flocks. AC methodology was implanted and all ewes in each flock were recorded. According the work organisation and methodology it is easier to take samples of all ewes. The price of analysis is 0.45 €. The sampling supposes additional work for officers and delays the milking. The identification of the sample is made according to the order of the control and the officers must be very careful with this aspect. The samples are sent to laboratory and the results from lab to associations are sent by modem and are automatically included in the milk recording database. The milk composition recording will be extended to more farms according to the financial support and the technical and genetic profitability (number of lactation calculated, pedigree knowledge, number of males tested).

2001: udder qualification program started in 26 flocks. All ewes being milked are qualified. The qualification is made before each ewe is milked. Each flock is visited one or two times during the milking season, so that almost all ewes can be scored. As the score slightly disturbs milking routines, the scoring must not be done at the same day as the milk recording. On average, the total milking time is delayed 30 minutes. It has been necessary to hire a technician. As for milk composition traits control, udder morphology control will be extended over a part of population according financial, technical and genetic aspects.

Nowadays, the estimated cost of genetic program is around 781,000 € (Basque Country and Navarra Blond-face) with more than 90,000 controlled ewes. The proportion of administration support is 70%.

Remarks

In order to obtain a good implementation of the genetic program, it is necessary that the technical organisation is well adapted to the production system. This adaptation is more difficult as the production system is more extensive and the output per animal is lower. Thus, milk recording can be very expensive. For that, we consider that the administration support is completely necessary in the first steps of this implementation.

The role of technicians is also very important because, especially at the beginning of the program, they must promote and stimulate the participation of breeders. In addition, the information that breeders get back must be useful and understandable (not only at a genetic level) so that they get implied in the genetic and recording programs.

The control of new traits leads with it more work and more costs (economical and time). Must of cases it suppose a reorganisation of work and the profitability must be take into account before a general implementation of control of new traits over total population under milk recording.

Another aspect that it is necessary to improve is the technical level of shepherds. It must improve as the genetic program goes on.

Genetic program is not a static organisation. It is dynamic and must be adapted to each moment needs. This supposes co-ordination between partners (workers, technical organisations, breeders' associations, research, data management, etc.). One handicap of genetic programs is that the genetic response is in the long-term. However, if the genetic program has a good organisation and has also good technical supports, an increment of production can be rapidly obtained improving management aspects as consequence of technical advises.

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