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Organization of the breeding plan for the Murciano-Granadina goat in Murcia (Spain)

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SUMMARY - Basic regulations on milk recording in Spain have not varied over the past years, and Murcia has always attempted to enforce them. The reliability of the Selection Plan has undergone a positive evolution, although there are still important aspects to be dealt with, such as finding out paternal lineages and performing mass inseminations.

Key words: Breeding plan, Murciano-Granadina breed, milk recording, Murcia region.

RESUME - "Organisation du schéma de sélection pour les chèvres de race Murcienne-Grenadine à Murcie (Espagne)". La réglementation de base du Contrôle laitier espagnol n'a pas changé au cours de ces dernières années. Mais la fiabilité du schéma de sélection a été améliorée bien qu'il reste à résoudre certains problèmes importants, comme la connaissance de la lignée paternelle et l'augmentation du nombre d'inséminations artificielles.

Mots-clés : Schéma de sélection, race Murcienne-Grenadine, contrôle laitier, région de Murcie.

Introduction

Goats are normally found, even in developed countries, in marginal areas, in which breeding constitutes one of the few farming activities possible.

The very few goat breeding plans that exist in the world, and especially in Europe, depend to a greater or lesser extent on public initiative, assistance and financing. These plans are founded on pure breed selection and based on milk recording. However, the price of such a control is 3 or 4 times higher than for cattle, due to the more widespread nature of the herds and to the larger number of animals needed to produce a smaller volume of milk.

Problem of official goat milk recording in Murcia

Official goat milk recording (MR) in Murcia has attempted to adjust faithfully to national Regulations (Order 11/02/1986, Official State Gazette 21/02/1986), it always goes hand in hand with the Genealogical Book of the Murciano-Granadina (M-G) breed, and is carried out through Milk Recording Control Centres under the supervision and surveillance of the Autonomous Communities (Falagán, 1995; Falagán, 1996; Falagán and Sotillo, 1996).

MR involves:

(i) During the kidding period, the breeder registers the date of every births and assigns her new born kids. Considering the high prolificity of the M-G breed (1.95) and their excellent maternal capacity, this assignment is sometimes wrong, which seriously upsets the Plan because genealogy is not fully controlled.

(ii) In monthly controls (every 30 days with a margin of ± 3 days) the milk produced by each animal per day is recorded. Since goats in Murcia are milked once a day, this requirement is fulfilled without difficulties.

(iii) The first control must be done 10 to 40 days after birth and, if kids are suckling their mother, immediately on weaning. The major drawback take place when kidding periods are not all together, which means that weaning will occur at different times.

(iv) A lactating goat is considered dry when she is not milked or produces less than 500 g of milk per day.

(v) Lactation is the period between birth and the last milking, and the milk produced in each lactation period is calculated by multiplying the mean milk yields of two successive controls by the number of days elapsed, and adding the amount of the last control multiplied by 15 days (known as Fleischmann real lactation).

(vi) To analyse data and compare results, lactations are normalized at certain number of days: 150 days for the first lactation and 210 days for the rest.

(vii) Finally, the milk is analysed for each goat in order to determine the content of fat, protein and dry extract.

Organization of the goat breeding plan in Murcia

The Plan is developed by the Association of M-G Breeders, with headquarters in Jumilla (Murcia), supported and supervised by the Murcia Local Ministry of Environment, Agriculture and Water (LME).

The Genetic Improvement Programme presented by the Association for 1996 is summarized as follows:

(i) Aims

- To identify and control production as a basis for genetic improvement.
- To artificially inseminate at least 20% of the reproduction goats per farm (Milk Recording Regulations) for the testing of males.
- To evaluate the males from which semen has been taken for artificial insemination over the past years.
- To inseminate with the semen of males from other farms, always with a view to on improvement on the recipient farm.
- To eliminate problems of blood relationships when using the semen of males from other farms.
- To compile a catalogue of improvement males in order to market cold-stored semen in the Murcia Region and the rest of Spain.
- To diagnose gestation using echography in all the females mated, both with natural and artificial insemination, to prevent the animals going through unproductive periods.

(ii) Identification

- Identification (tattoo on the ear and crotal round the neck) and morphological assessment of the goats is done by a controller.
- The identification marks are noted in the tattoo records, which include date of birth, father, mother and score.
- As the number of artificial inseminations is still small, and the system of production followed in Murcia does not allow matings to be controlled, the paternal lineage is sometimes unknown, which means that genetic progress is drastically impaired.

(iii) Milk recording (Cruz *et al.*, 1995)

- It is done by two controllers, one per centre, which takes in 52 goat farms with over 6,000 adult goats: Centre 1: Yecla and Jumilla; Centre 2: Lorca, Caravaca, Calasparra, Murcia and the Campo de Cartagena.
- The controllers individually measure the quantity of milk yielded per goat (using meters coupled to the milking machine or by hand-weighing the milking recipient) and take a sample

(40 cc) of milk from each goat; a preservative is added, and the sample is sent to the Milk Analysis Laboratory belonging to the LME, in Guadalupe (Murcia), where its composition is determined by Milko-Scan.

(iv) Records of matings and births

- Each breeder fills in a register, occasionally for matings and always for births.

(v) Data processing

- An administrative assistant enters all the information recorded on a software application designed by the LME.

(vi) Inseminations

- The intention for the future is that most breeders allow at least 20% of their animals to be inseminated so that males can be tested.

(vii) Results

- The Association regularly informs breeders of the production of their herds with a list of completed lactations and sends the original, approved and signed by the LME, to the Ministry of Agriculture (Madrid) to apply for the subsidy.
- From time to time, the LME has evaluated reproduction goats genetically using the BLUP method for animals.
- Like the fat and protein milk level are high in Murciano-Granadina breed, the more important criteria breeding is the quantity of milk produced, while this levels do not come down.

(viii) Financing (Jiménez Gamero *et al.*, 1995). The Plan is supported by four sources of financing received by the Association:

- The Ministry of Agriculture awards a bonus for lactations completed.
- Budgeting from the Annual Integral Plan of the LME.
- Percentage retained per animal sold, with genealogical map.
- Contributions from breeder members.

Evolution of the breeding plan

The tendency in Murcia now is for the Sector to participate more and more actively, through the Association of Breeders. For example, 10 years ago the controllers were staff employed by the LME, now they belong to the Association; the databank computer was in the LME, whereas now the Association has a permanent headquarters equipped with administrative staff, computers, etc.

Formerly, milk recording was less reliable: if subsidies were late in arriving, controls could be stopped for months until the financing was received for them to be resumed. Today, most breeders are aware of the upsets to the Plan when Dairy Control is not continuous.

This stability is shown by the fact that the LME Milk Laboratory, analysed a total of 26,174 and 26,372 samples in 1995 and 1996, respectively (belonging only to the Yecla-Jumilla Centre), however, in 1993 there were only 17,177 samples.

The past 2 or 3 years has witnessed an awareness campaign for the number of inseminations to be increased with a view to achieving herd connection and testing males, but it has still not produced the desired results.

Final consideration

It is acknowledged that the basic force behind the development of the Breeding Plan is a reliable milk recording, however, this not only means accuracy in the data on quantity and composition of the

milk produced individually, dates of birth and assignment of kids to mothers, but rather it is necessary to use BLUP detection to find the best reproduction animals (with knowledge of both the maternal and paternal lineages) and have them reproduce, to maintain annual replacement numbers, by mass inseminations.

The Murciano-Granadina Breeding Plan present in Murcia the greatest development in the country. However, we still have not analysed input data to estimate its efficiency.

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