

Reintroduction of the local breeds of sheep and goats in Malta

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SUMMARY - The number of goats and sheep in Malta has decreased considerably especially in the Maltese local breeds. A program for increasing these Maltese goats began in 1994, and the mainly involves the collection of Maltese breeds of sheep and goats from farmers, importing Maltese goats and sheep from abroad, and then restocking the farmers the selected possibly pure Maltese breeds. In parallel with this project, a method using genetic markers is being developed to help in the selection of these animals.

Key words: Maltese breeds, genetic selection programmes, genetic markers.

RESUME - Les populations de chèvres et de moutons ont fortement diminué à Malte, plus spécialement les races locales. Un programme d'augmentation du cheptel a débuté en 1994; d'abord en recensant les races ovines et caprines présentes dans les fermes, puis en réimportant ces races maltaises afin de restituer aux agriculteurs des races maltaises sélectionnées, et si possible des races pures. D'autre part, on développe l'utilisation de marqueurs génétiques pour favoriser la sélection de ces animaux.

Mots-clés: races maltaises - programmes de sélection génétique - marqueurs génétiques

SHEEP AND GOATS BREEDS INVOLVED IN THE GENETIC SELECTION PROGRAMME.

Maltese goats.

The Maltese goat has a white body with long hair, black head and large drooping ears. This breed do not have horns. This breed came from the Middle East. It is usually raised in small flocks of about 40 - 60 heads. Kidding occurs during the whole year, with a concentration during the months of November and February. Milk production is about 350L with a high fat (3.8%) and protein (3.3%) contents. Prolificity is also high (180%) (Rubino, R.; 1993). The variation of the goats with time in years is shown in *Table 1*.

Maltese sheep.

The Maltese sheep has a white body and a black head, similar to the Maltese goat. The origin of the Maltese breed is from the Awassi breed. It is usually raised in small flocks of about 50 - 80 heads. Milk production is about 320L with a high fat (4.5%) and protein (3.9%) contents. Prolificity is about 150% and lambing occurs during the whole year, with a concentration during the month of November. The variation of the sheep with time in years is shown in Table 1.

Table 1: Variation in the number of goats and sheep with time in years.

| Year | Goats | Sheep |
|------|-------|-------|
| 1989 | 6522 | 5520 |
| 1990 | 5993 | 7428 |
| 1991 | 5147 | 7480 |
| 1993 | 3669 | 7080 |
| 1994 | 3600 | 6145 |

MANAGEMENT.

Reproductive. The natural reproductive method is usually used. In parallel with this breeding selection program, another programme to introduce hormone synchronization and artificial insemination is being carried out. The final aim is to introduce the technique of embryo transfer in the nearby future.

Nutritional. The feeding system is a combination of forage plants and usually concentrates in the form of pellets. Grazing sometimes takes place but is not practiced by all the farmers. The common foreign plants used are: (i) *Hedysarium conorarium*; (ii) *Vicia sativa*; and (iii) *Medicago rigidula*. The concentrate pellets are usually made up of Barley, maize, cotton sieve cakes, minerals and vitamins. The pellets contain 15.5% Proteins, 11.5mJ Energy and 3.5% Fibre. The goats are usually given 0.8 kg during the early pregnancy, 1.0 kg or more during the milking phase and late lactation and 2.0kg per 5 liters of milk. The males are not given maize due to problems with the urinary systems but are given crushed barley. The feeding for the sheep is very similar to that of the goats.

Housing. An open yard system is common used in Malta.

Milking. Old farmers prefer the mechanical milking but most of the farmers nowadays prefer the small portable milking machine. Milking parlors are not commonly used as the number of goats in a flock is small.

GENETIC SELECTION PROGRAMME - GOATS.

Aim: To re-introduce the Maltese breeds in Malta and thus select for the Maltese local endemic breeds.

Methods: As Malta is a small island this method is hoped to be a successful but I do not think that such a method would be feasible for a large country. The method we began to use involve the buying from local farmers of those breeds of animals that resemble the Maltese goat. The animals are place in the Government farm, this is the stage we are working upon. The animals are selected from their phenotype characteristics, that is the colour (white body with black head), long ears and lack of horns. Animals are also to be imported from nearby countries where this breed is found, this is due to the low number of Maltese goats in our country.

A work involving molecular biology is being carried out in order to help in the selection programme. The principle of this method is to find a genetic marker which could be a mRNA or cDNA or even a particular sequence of the DNA. This sequence is labelled usually with a phosphorus isotope and now this probe can to used to select the animals of this breed of interest. The main techniques to be used in this project are the PCR, VNTR and RFLP methods.

The same techniques and selection programme is to be carried out in the future on the Maltese sheep. The first part of this program that is the collection and importation of the animals is aimed to take about 4 years, and by that time, it is hoped to have the a method available for the selection of the animals.

INFRASTRUCTURE.

For this project the Government Farm for Research and Development is being used. This farm could house approximately one thousand animals. The molecular biology research part is being carried out in the University of Malta in the Laboratory of Biomedical Sciences. Most of the recording and selection of the animals is being carried out by the staff working the in the Government Farm.

DISCUSSION.

This genetic selection programme only started the last year, so this program till now is not well stabilized and is difficult to discuss the cost/benefit analysis. The Maltese Government is till now the main financial support but is not enough and such a research using biotechnology for the selection of animals should be a international programme.

REFERENCES.

1. Rubino, R.; (1993) Goat Breeds in Italy in Animal Genetic resources information No. 11. United Nations Environment Programme (UNEP); Food and Agriculture Organization of the United Nations (FAO).