ESTIMATION OF GENETIC PARAMETERS FOR MATURE WEIGHT IN SHEEP SANTA INÊS

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The increase in body weight is a complex phenomenon and it depends on both genotype and environmental effects acting on an animal. Selection for body weight at young ages and growth rate in meat sheep usually results in more precocious animals, that is, animals that reach the optimum slaughter weight in a shorter period of time, maximizing the production system. On the other hand, this selection makes possible the increase of body weight in adult animals for replacement. Santa Inês sheep breeders are concerned about increasing the animals´ weight, and this increase has been notices over the years. However, it is known that larger animals are less efficient and increase maintenance costs. It is important, therefore, to seek a balance between increasing weight at young ages and the weight of adult animals. In improvement programmes it is essential to know the genetic parameters for conducting an efficient selection. The aim of this study was to estimate genetic parameters for Mature Weight (MW) of Santa Inês sheep. The data used in this study come from a herd which belongs to the company Gaasa Alimentos LTDA, located in Inhumas (a town in the Brazilian state of Goiás),and they are part of the Programme of Genetic Improvement of Goats and Sheep (GENECOC) managed by the company Embrapa Goats and Sheep. The analysis was carried out through an animal model from the relationship matrix which consisted of 13,440 animals. The analysis was carried out through the Method of Maximum Likelihood Derivative Free Restricted (DFREML), using the MTDFREML software. The model had the random additive genetic as well as the permanent environment of the animal effects, and also the fixed effect of contemporary group (animals born in the same season and year, with the same kind of birth and sex, as well as subjected to the same handling), and finally the covariate age of the animal in weighing. It was used the weighing of animals between three and five years old. The mean for MW (n = 12,511) was 51.08 ± 8.17 kg. It is worth emphasizing that this average is expected for a commercial herd. Santa Inês sheep's adult weight increasing may not be the most appropriate strategy, especially in that it is a breed of maternal fitness. The selection for heavier animals could have harmed the overall productive performance, making this breed more demanding and consequently less profitable. The heritability of the MW was of a moderate magnitude (0.36). This result indicates that the mass selection can be used as a breeding strategy. However, economic studies will be important to show if this selection must be positive (increased weight) or negative (reduced weight), while maintaining the balance between production efficiency and growth rate.

Keywords: body weight, heritability, maternal fitness, meat sheep, productive performance

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