Abstract

The aim of the present study is to determine factors effecting survival of two sheep races naming "Muğani" and "Sangsari", and to evaluate its variance parameter. The data used in the study were obtained from National Animal Breeding Center and Promotion of Animal Products. The data concerning Muğani sheep consist of 14628 records including 644 rams and 4272 ewes, and was collected during 1984 to 2011. The data regarding Sangsari sheep consists of 3547 records including 634 rams and 11807 ewes, and was collected during 1988 to 2010. After editing the data, factors affecting survival and elimination risk in the two races were determined using "Survival" and "CMPRSK" softwares. Assessment of variance parameters of the survival characteristic has been done using exponential distribution based on censored data by the model of direct health effect of the sheep (Model 1) and the model with the direct health and maternal effect (Model 2) using the "MCMCglmm" software. A sample of 60000 with a loss period of 10000 and sampling delay of 50 has been used for evaluating the parameters. The results showed that year, month, gender, birth weight code and combined effect of year and month factors have a significant effect ($P<0.001$) on the survival of both races, and birth type ($P<0.001$) and mother's age ($P<0.001$) have a significant effect on the survival of Muğani sheep. Survival of lambs due to mother's age is not significant in Sangsari sheep race which the reason can be traced back to the young ages of this race. Significance of mutual effects of birth year and month implies the necessity of filling all the cells in the statistical model. Comparing function graphs of survival differences in the two races of Muğani and Sangsari sheep considering the differences in variance curve revealed that management conditions are different in the two studied races. Inheritability assessment of Muğani and Sangsari sheep in 1 and 2 models are 0.18 and 0.1, and 0.12 and 0.09 respectively which includes two health effects and indicates that the estimated inheritability is low and different. The reason of inheritability being different is that every population is effected by its own genetic variance and there are some differences from genetic potential point of view. The significance level of chain convergence detection of 1 and 2 models in Muğani sheep is 0.85 and 0.06 and for the remaining effects 0.68 and 0.33 respectively and in model 2 it was obtained as 0.94 for the Muğani mother sheep. Also the level of significance for chain convergence detection of 1 and 2 models in Sangsari sheep is 0.10 and 0.81 and for the remaining effects 0.94 and 0.38 respectively and in model 2 it was obtained as 0.76 for the Sangsari mother sheep. One of the main reasons of convergence can be repetition of combined model equations.

Keywords: Survival trait, variance components, Breeding values, Muğani and Sangsari sheep

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