

Study of Genetic and Non-Genetic Factors Influence on Survival in Lori-Bakhtiari Lambs

Abstract

Data and pedigree information for Lori-Bakhtiari sheep used in this study were 6241 records of lamb survival from 246 sires and 1721 dams collected from 1989 through 2007, from a Lori-Bakhtiari flock at Shooli station in Shahrekord. To estimate the effect of non-genetic factors on survival lambs used GLM procedure from SAS. The models included fixed factors that had significant effects and random direct genetic, maternal genetic and residual effects. Genetic parameters were estimated using restricted maximum likelihood procedure applying univariate and bivariate animal models with and without maternal effects. Results showed that the overall mean of cumulative lambs' survival were 0.98, 0.97, 0.97, 0.95, 0.94, 0.90, 0.82, 0.78, 0.75, 0.72, 0.69, 0.68, 0.68, and 0.68 from birth up to 7, 14, 21, 30, 60, 90, 120, 150, 180, 210, 240, 270, 300, 330 and 365 days of age, respectively. The age of dam, sex of lamb, year of birth and birth weight of lamb as covariate had a significant ($p \leq 0.05$) effect on lamb survival, but the type of birth was not significant. The least square means of lamb survival increased with age of dam and then decreased in dams with more than 5 years old. The least square means of lambs' survival in females was higher than the male lambs from birth up to 12 months of age. The birth weight of lamb had a highly significant ($P \leq 0.01$) effect on lamb survival at all ages as quadratic regression. Direct and maternal heritability estimates of lamb survival ranged from 0.01 to 0.22 and 0.01 to 0.04, respectively. Direct heritability increased with age of lamb, while maternal heritability decreased. Genetic and phenotypic correlations of lamb survival between different ages were medium to high and decreased when the interval between ages increased.

Key words: Genetic, Non-Genetic, Lamb Survival, Lori-Bakhtiari Sheep.



**University of Zabol
Faculty of Agriculture
Department of Animal Science**

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Supervisors

**Dr. H. R. Mirzaei
Dr. M. Vatankhah**

Advisors

**Dr. M. Yousef Elahi
Dr. M. Hossein pour**

By

Danesh Sisakhty

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