

## عنوان مقاله:

Genetic analysis of ewe body weight in Lori-Bakhtiari sheep using random regression models

## محل انتشار:

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## نویسنده:

M. Vatankhah - Department of Animal Science, Agriculture and Natural Resources Research Center, Shahrekord, Iran

## خلاصه مقاله:

Co)variance components and genetic parameters for test day ewe body weight of Lori-Bakhtiari sheep were estimated using a random regression model (RRM). The data consisted of 22153 individual body weight records, obtained from 1994 ewes (progeny of 205 sires and 1010 dams) between 371 and 3416 days of age, collected from the flock stud of Lori-Bakhtiari Sheep Breeding Station in Shahrekord, Iran during 1989 to 2008, with a total of 2225 animals in the pedigree. The model included the fixed effects (year of production, litter size and stage of production cycle) and random additive genetic, permanent environmental and residual effects. Random regression models were fitted with order 1 to 5 ( $k = 2$  to 6) for additive genetic and permanent environmental effects. The residual variance in each model was assumed to be homogeneous or heterogeneous with 9 age classes. Results indicated that the 5th order ( $k = 6$ ) with heterogeneous residual variance was more appropriate than others. Based on selected RRM, the additive genetic variance, permanent environmental variance and phenotypic variance increased with the ewe age. The heritability estimates were  $0.38 \pm 0.04$ ,  $0.44 \pm 0.04$ ,  $0.42 \pm 0.04$ ,  $0.38 \pm 0.04$ ,  $0.37 \pm 0.05$ ,  $0.42 \pm 0.06$ ,  $0.48 \pm 0.10$  and  $0.50 \pm 0.14$  for the ewe body weights at 1.5, 2.5, 3.5, 4.5, 5.5, 6.5, 7.5 and 8 years of age, respectively. The proportion of permanent environmental variance to phenotypic variance ranged from  $0.16 \pm 0.04$  to  $0.39 \pm 0.05$ . Genetic and phenotypic correlations of ewe body weight between consecutive test days were high, but decreased when the interval between body weight measurements increased, ranging from  $0.45 \pm 0.08$  to  $0.99 \pm 0.09$  and  $0.37 \pm 0.05$  to  $0.73 \pm 0.01$ , respectively. Thus, due to moderate genetic correlations between ewe body weight at early and older ages, genetic analysis using RRM may be recommended for improvement of ewe body weight in Lori-Bakhtiari sheep.

## کلمات کلیدی:

heritability, genetic correlation, random regression model, Lori-Bakhtiari sheep

## لینک ثابت مقاله در پایگاه سیویلیکا:

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