Abstract:

Estimation of non-additive genetic variance components of some economic important traits in Zandi sheep using 8581 records of Zandi sheep, that during 16 years (1373 to 1389) had been collected by the Animal Breeding Center. Under 8 different animal models, additive (A), additive and dominance (A + D), additive and epistasis (A + EP), additive, dominance and epistasis (A + D + EP), additive and permanent environmental (A + C), additive, dominance, and permanent environmental (A + D + C), additive, permanent environment and epistasis (A + C + EP), additive, dominance, permanent environmental and epistasis (A + D + C + EP) including fixed effects (herd, sex, type of birth, year - month of age) and random effects were studied.The studied traits were including growth and composite reproduction traits. Growth traits including birth weight and weaning weight and also composite reproduction traits were including total and average weight of lambs born per ewe at birth and total and average weight of lambs weaned per ewe at birth. The primary editing of the data was performed by the Foxporo software and in the end non-additive genetic variance components using restricted maximum likelihood (REML) method under software A-IREMLf90 were estimated.The most appropriate model for analysis of the data was chosen using the likelihood ratio test. Total average birth weight, weaning weight, total weight of lambs born per ewe at birth, the average weight of lambs born per ewe at birth, total weight of lambs weaned per ewe at birth and mean weight of lambs weaned per ewe at birth, 4/26, 28/36, 4/73, 4/47, 22/41 and 23/5 kg respectively. The results of this study shows for birth weight trait model 2 was identified as the most appropriate model that in this model heritability, proportion dominance of the total variance and proportion dominance of the additive variance were %31, %1/3 and %1/4 respectively, for weaning weight trait model 5 was identified as the most appropriate model, in this model heritability and permanent environmental proportion of the total variance were, %10 and %14/6 respectively , For lambs born per ewe per birth weight toal trait model 4 was identified as the most appropriate model, in this model of heritability, the proportion of total variance dominance, epistasis share of the total variance, the proportion of additive variance and dominance epistasis share additive variances were estimated, %16/10, %1/0, %0/06, %0/93 and %0/46 respectively, For lambs born per ewe per birth weight average trait model 4 was identified as the most appropriate model in the model ,heritability, the proportion of total variance dominance, epistasis share of the total variance, the

contribution of additive genetic variance, dominance and epistatic contributions of additive genetic variance, were %17, %1/3, %0/8, %8/3 and %1/6 respectively. For total weight trait of lambs weaned per ewe per birth model 4 was identified as the most appropriate model, in this model of heritability, the proportion of total variance dominance, epistasis share of the total variance, the variance contribution of additive and dominance contributions additive epistatic variance, respectively, %1/7, %2/2, %0/1, %129 and %7/6 respectively. average weight trait of lambs weaned per ewe per birth model 4 was identified as the most appropriate model, in this model of heritability, the proportion of total variance dominance, epistasis share of the total variance, the variance contribution of additive and dominance contributions additive epistatic variance, respectively, %6, %0/8, %0/3, %13/6 and %4/9 respectively. The results show non-additive genetic effects added to composite reproduction traits models were more important than growth traits and the addition of non-additive genetic factors in assessment models there was no change in the rankings of animals under stady.

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